Flagstaff Region Management Plan

Preliminary Planning Document

Maine Department of Conservation
Bureau of Parks and Lands

Revised 10/31/05

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I. Executive Summary

This document constitutes a 10-year Management Plan (proposed for 15 years) for the Reserved Land properties within the Flagstaff Region of Maine managed by the Bureau of Parks and Lands (the Bureau). The region roughly encompasses the area north of Farmington to the Canadian border, and east of the Rangeley Lakes Region to the Kennebec River valley. The properties addressed in this plan include:

Bureau of Parks & Lands Property	**Acreage***
Mt. Abraham (Abram)	6,214
Bigelow Preserve	35,843
Chain of Ponds Twp.	1,119
Coplin Plt. West Lot	400
Coplin Plt. Central Lot	500
Dead River/Spring Lake	5,151
Flagstaff Twp. (Myers Lodge)	290
Flagstaff Twp. (Northern Shoreline)	1,316
Flagstaff Twp. (Island)	220
Freeman Twp.	112
Highland Plt. Double Lot	300
Highland Plt Southeast Lot	125
Highland Plt. West Lot	325
King and Bartlett Twp.	60
Redington Twp.	1,000
Wyman Twp./Carrabassett Valley	1,112
Total	**54,087**

**acreage figures are calculated on the basis of deeded acres. Actual acres, particularly on Original Public Lots, will vary.*

In addition, considerations for the Bureau's responsibility in managing a 9,182-acre conservation easement in Pierce Pond Township will be addressed, along with the Bureau's role in preserving and interpreting the Arnold Trail where it passes through the Plan area.

This Plan meets the requirements for development of multiple-use management plans as set forth in Title 12 MRSA § 1847 (2), and is prepared in accordance with the guidelines set forth in the *Integrated Resource Policy* revised and adopted in December 2000 by the Bureau. These laws and policies direct the Bureau to identify and protect important natural, ecological, and historic attributes; enhance important fisheries and wildlife habitat; provide opportunities for and variety of quality outdoor recreation experiences; and provide a sustained yield of forest products by utilizing forest management techniques and silvicultural practices that enhance the forest environment.

This Plan is a commitment to the public that these lands will be managed in accordance with the Bureau's mission and goals, and within prescribed mandates. Revisions to these Plan commitments will occur only after providing opportunities for public comment. This

Plan also serves as guidance to the Bureau staff. It provides clear management objectives within the Plan area, while providing a degree of flexibility in achieving these objectives. This document is not, however, a plan of operations.

Summaries of the resources, issues, and management objectives for each Unit or parcel are provided separately. One of the important aspects of the plan development process, however, involves consideration of the Bureau's ownership within the larger region. By looking at the resources within each parcel, in view of the larger system of resources in which it exists, resource planners are better prepared to provide a more balanced spectrum of opportunities across the regional Plan area.

This Plan is applicable for the next 10-year (proposed for 15 years) period. After that time, a full review and update of the information and management objectives will be conducted. The Bureau recognizes that some resources and management issues will undergo change over time, while some of the stated objectives will require longer than the plan period to achieve. However, should significant issues warrant, the Plan can be reopened at any time.

This Plan is the result of an intense interdisciplinary review. Extensive efforts were made to incorporate public comment, and to ensure an integrated approach to Plan development. The Bureau acknowledges the helpful participation of members of the public, including the Flagstaff Region Advisory Committee (listed in Appendix D), local focus groups, and a variety of professional resource managers - both public and private - in the development of this plan. Continued public support will be needed to achieve the management objectives outlined. Our hope and expectation is that this Plan lays a solid foundation for public and private cooperation in achieving the objectives set forth in this document.

II. Components of the Resource Management System

Summary of the Planning Process

The Bureau of Parks and Lands is statutorily required to develop management plans for all Reserved and Non-reserved Land properties across the state. The criteria, planning methodologies, and resource management policies described in the Bureau's *Integrated Resource Policy* as revised in December 2000, provided the necessary guidance towards the development of this Plan.

Due to the Bureau's relatively large and expanding land base, the management planning process is now conducted on a "regional" basis; Bureau properties are selected on the basis of their geographic proximity to one another, their relation to certain cultural "regions" of the state, and their placement within certain resource associations. The parcels within the Flagstaff Region are generally within close proximity the Route 27 corridor from Kingfield to the Canadian border, or to Flagstaff Lake, the central feature within this region. For the purposes of natural resource planning, these properties fall within the Western Mountains "biophysical" region, with the exception of the Pierce Pond property, which is within the Central Mountains region. For the purposes of forest management planning, these properties also share the same Sustainable Harvest Unit (SHU) with the exception of the Redington Public Lot.

The regional method also provides opportunities to look generally at the availability of resources within the Plan area, including those on private lands that are available to the general public, as well as on other publicly owned lands. Resource management planning for the Flagstaff Region properties can then be accomplished with a better understanding of how these properties interconnect with the region as a whole.

In preparation for development of this Plan, Bureau staff undertook an intense review of the available resources and management issues within the Plan area, including those having natural and geological, historic and cultural, fisheries and wildlife, recreation, and timber and renewable resource importance. Much of this information was obtained by conducting formal inventories of specific resource areas (Natural Resource Inventories, Cultural Resource Inventories, etc.). Resource professionals from within the agency provided updated information on wildlife, recreation, and timber resources. Mapping and GIS-related information was also obtained and updated as part of this phase. The Bureau also conducted both internal and public scoping sessions to better determine management issues to be addressed in the plan. A public scoping session was held in Farmington in March of 2005, attended by more than 60 people. Field tours were conducted to address concerns relating to the Bureau's plans to manage timber in the Bigelow Preserve. A Preliminary Planning document (Preplan) describing the available resources and important management issues was then prepared by staff.

The Bureau Director also selected a Flagstaff Region Public Advisory Committee to review and comment on plan drafts and otherwise provide feedback on related matters throughout the plan process. Members of this committee were selected on the basis of their resource expertise, and for their regional and local knowledge of the areas addressed in the plan. Along with input from the committee, the general public was

provided an opportunity to receive and comment on plan drafts, and to attend meetings as interested parties. The first meeting of the committee dealt specifically with the Preliminary Planning document; comments from this meeting and from other interested parties were used to develop the first full draft of the regional plan that included the Bureau's management commitments or "resource allocations" (see following discussion) for the 10-year plan (proposed for15 years) period. A second advisory committee meeting was then scheduled to receive feedback on this draft, with subsequent drafts developed in preparation for a Final Draft for review by the Commissioner of the Department of Conservation. The Flagstaff Region Management Plan was adopted on _____.

Summary of the Resource Allocation System

The Resource Allocation System is a land management-planning tool first developed in the 1980's, and further refined when revisions were made to the current *Integrated Resource Policy*. The system is a hierarchy of natural, historic, and cultural resource attributes found on the land base that defines the type of management that will be applied where these resource attributes are found. Resources are ranked from those that are scarce and/or most sensitive to management activities to those that are less so. A natural, undisturbed landscape, for example, may be more conducive to dispersed recreation activities than the more intensively developed facilities and activities found in a state park setting. Areas considered to be productive timberlands, where conflicts from other uses are minimal, may be allocated as timber dominant. The resource category requiring the most care of natural, historic, and cultural attributes will dominate over all other categories. The following is a summary of the Resource Allocation System categories and the ranking of resource attributes.

SPECIAL PROTECTION AREAS
includes natural areas, historic/cultural areas, and Ecological Reserves

BACKCOUNTRY RECREATION AREAS
includes non-mechanized and motorized recreation areas

WILDLIFE DOMINANT AREAS
includes essential habitat, significant habitat, and specialized habitat areas and features

REMOTE RECREATION AREAS
includes trail corridors, shorelines, and remote ponds

VISUAL CONSIDERATION AREAS
includes Visual Class I and Visual Class II Areas

DEVELOPED RECREATION AREAS
includes Developed Class I and Developed Class II Areas

TIMBER MANAGEMENT AREAS

The Bureau is also committed to undertaking certain monitoring activities throughout the 10-year (propose to be 15 years) period to ensure compliance with plan commitments, and as a means to address ongoing management needs. They are as follows:

Plan Monitoring

1) Plan Recommendations. The Bureau routinely develops a schedule for implementing and accomplishing the management recommendations put forth in its management plans. These recommendations provide the basis for determining work priorities and program budgets on an annual basis, in a process known as Calendar Year Planning.

2) Easements. The Bureau has developed baseline monitoring protocols for the Pierce Pond easement, to be implemented by means of a third-party contract. These protocols will address the regular inspection of these lands to ensure that easement conditions are met.

3) Public Use. The Bureau conducts public use counts in the Bigelow Preserve from time to time, primarily as it relates to hiking on the Appalachian Trail, and the snowmobiling on the loop trail around the mountain range.

4) Post-harvest Monitoring. The Bureau has developed a post-harvest monitoring plan to assist forest managers in assessing harvest outcomes. The monitoring plan addresses water quality and Best Management Practices (BMP's) utilized during harvest activities.

5) Wildlife. The Bureau, through its Wildlife Biologist, routinely conducts a variety of species monitoring activities statewide. Within the plan area, waterfowl brood counts have been conducted and will be continued or expanded where appropriate.

6) Ecological Reserves. A contract with the Maine Natural Areas Program has been established to conduct baseline data collection on all designated Reserves, and will be updated from time to time. Baseline data has been completed on the Reserves within the Plan area.

III. Regional Context

A. Introduction

The scope and purpose of this section is to provide general information on the geographic region identified in this plan; which includes roughly the area from Farmington to the Canadian border, and from the east side of the Rangeley Lakes area to Kennebec Valley. It is also an overview of the available resources and resource opportunities throughout this area - on state lands and otherwise - which in turn are and will be important in addressing the resources and management issues specific to the lands addressed within this Plan. This section does not make recommendations regarding any resources or opportunities not within the management responsibility of the Bureau of Parks and Lands.

B. General Description of the Regional Plan Area (include Tourism)

TO BE COMPLETED

C. Natural and Geological Resource Summary

The landscape of the Flagstaff Region is characterized by broad valleys bounded by some of the highest mountains in the state. Alpine areas, some of which are located on Bureau lands, harbor rare plant and animal species, many of which are at the southern extent of their range.

The Physical Landscape: Geology, Soils, and Hydrology

The Flagstaff region is underlain by folded and faulted sedimentary and igneous rock that represents the region's chaotic geologic history. The sedimentary rocks originated as layers of sand and mud in an ocean basin along the ancestral margin of North America between 450 and 400 million years ago. The period between 500 and 380 million years ago was tumultuous for the region as an ancient ocean basin closed through a series of collisions between large and small plates that make up the earth's crust. Although this was generally a period in which the crust of the ancestral ocean floor was destroyed as the large crustal plates converged, in some areas small ocean basins formed due to the geometries of the large plates and small plate fragments. As plates continued to collide, this ocean basin was uplifted, and the sediments were metamorphosed. At around the same time, magma welled up beneath the earth's surface and cooled slowly there.

Much of the landscape is cloaked in till from the last glaciation (11,000 years ago), though pockets of other glacial deposits can be found in the region. Glacial Lake Bigelow was once where Flagstaff Lake is now, filling the basin 33 feet higher than current summer lake levels. Where the glacial lake once was are now thick clay deposits. Traces of eskers and glacial outwash deposits are also found in the region. Soils reflect this glacial heritage and tend to be very stony.

While most of the region drains into the Dead River, the southern and southeastern units (including the Highland, Mt. Abraham, Redington, and Freeman public lots) drain into the Sandy and Carrabassett Rivers and eventually into the Kennebec River.

The Biological Landscape: Forest Types, Plants, and Animals

A number of natural disturbances keep the Flagstaff region's forests in flux. Small-scale forest fires, often triggered by lightening strikes, occasionally occur in New England. The fires opened up patches of forest that typically became recolonized by fast growing, short lived species such as aspen or paper birch. This patchy disturbance contributed to the uneven and diverse forest canopy.

Spruce budworm outbreaks have occurred two to three times in the past century, with the most recent occurrence in the 1980s. While the scale of budworm damage covered millions of acres, the intensity varied considerably according to the balsam fir component of each stand (balsam fir is the preferred food of the budworm). Budworm damage was most severe in transitional areas next to large openings of burned stands and along wetland transitional zones. Large openings from budworm damage are uncommon, though timber salvage may have increased the size of natural openings. Past high grading of white pine and red spruce on private lands is thought to have increased the severity of budworm outbreaks by promoting fir growth. At higher elevations, budworm damage coupled with wind and weather to create larger, more frequent gaps.

Many plant and animal species reach the southern limits of their range in Maine's alpine and sub-alpine zones. Those that can live in this harsh environment often adopt unique strategies to survive, including the ability to conserve water in the drying winds and to tolerate very cold temperatures. As a result, these areas tend to be hotspots for rare or uncommon species, including animals such as rock voles and Bicknell's thrushes and plants such as Lapland diapensia.

D. Historic and Cultural Resource Summary

The forest products industry has, for a long time, underlain the character, economy, and culture of the Flagstaff region. According to Austin Cary's survey in 1895, of the 335 square miles in the Sandy and Carrabassett River drainages, only 15% of the total land remained uncut (Cogbill 1998). Many large blocks of industrial timberland remain today within the region.

History of Flagstaff Lake

In 1923, a Private and Special Law was enacted by the Maine Legislature (later amended in 1927), giving approval for construction of a dam on the Long Falls portion of the Dead River in Spring Lake Township. Water rights to the 1150' contour were also granted at that time. In 1940, CMP acquired the necessary lease from State in accordance with the 1927 legislation, and in the years that followed the villages of Flagstaff, Dead River, and Bigelow were vacated and flooded. The dam was built and the impoundment known as Flagstaff Lake created in the fall of 1949, although construction was not completed until the following year. As a result of this impoundment, full pond now reachs to the 1146' contour.

Occasionally, visitors to the Flagstaff area may encounter remnants of the three villages displaced by dam. Dead River Plantation was located on what is now the southeastern shore of the lake, while the villages of Bigelow and Flagstaff surrounded what is now the small channel of water that leads to the upper portion of Flagstaff Lake (in what was formerly Flagstaff Pond). Bigelow Plantation was south of the old river course, while Flagstaff Plantation was on the north shore.

Duluth "Dude" Wing grew up in the village of Flagstaff and remembered fondly:

"… the little town of Flagstaff was unique in that everybody knew everyone else … it was a nice quiet little town. There was only one industry- the Harry Bryant Mill (a birch mill) - it was ona millpond right on the village - the mill supplied power to us…"

At times, the villagers had to ration the supply of electricity for special events:

"Well, at school we had a lot of lights in the gymnasium. And if you had a basketball game scheduled that night, then the people in town shut off all their lights…"

Arnold Trail Historic District

Other significant historic resources relate to the march of an army commanded by Benedict Arnold during the American Revolution. In 1775 Arnold planned a surprise attack in an attempt to overthrow British rule in Canada – in the hopes of turning the tide of the Revolutionary War. Arnold lead his colonial militia along an ancient Indian route from the Kennebec River to Quebec City, enduring tremendous hardships along the way, particularly on the northward trek from Bigelow Mountain to the Canadian border. The historic trail followed the watercourse along what is known as the Great Carrying Place, roughly over what is now the Appalachian Trail. The route continued along the Dead River in what is now Flagstaff Lake, then along the North Branch of the Dead River into the Chain of Ponds. As the route continued northward along Horseshoe Stream the watercourse became obscured, and Arnold's army became separated. Many turned back at this point, many others died of starvation and exposure. Arnold eventually made it into Quebec, where the expedition came to an end when its attack on the British proved unsuccessful.

The Maine Historic Preservation Commission has filed an application to have the Trail included in the American Battlefield Protection Program, which would provide additional protections along the corridor. The Arnold Expedition Historical Society and the Kennebec-Chaudiere International Corridor have also worked on developing interpretive resources along the trail. The Bureau will continue to focus its interpretive efforts on areas where the trail crosses state-owned properties, particularly in the Chain of Ponds area.

E. Fisheries and Wildlife Resource Summary

Fisheries

Native brook trout are the keystone fish species found in this region. Many of the lakes and ponds have never been stocked with hatchery trout. Water quality is good to excellent throughout the region. The greatest threat to the fishery is the illegal stocking of non-native fish, which diminish native populations. The introduction of invasive aquatics to otherwise pristine waters is another issue of regional concern, as these species can severely impact the quality of habitat for fish.

Wildlife

This area has the lowest density of bald eagles in the state, with 2 nest sites found on Flagstaff Lake. Eagles are, however, slowly colonizing this region from the south and east. There is a Tomah mayfly population on the North Branch of the Dead River adjacent to Flagstaff Lake; otherwise, there are no other threatened or endangered species known to occur in this area.

Deer populations in the region are limited by the availability of mature softwood stands needed for winter cover. The region was significantly impacted by the spruce budworm outbreak in the 1980's, and the extensive harvesting that followed. Bear and moose populations are thriving in this region, however, due the availability of preferred foods resulting from the extensive harvesting.

A goal for the management of these lands in the region is to increase the quality and quantity of softwood dominated stands amongst the predominance of hardwoods. Many other wildlife species would also benefit from a better diversity of forest types.

Maintaining beech in the face of severe disease problems is a second regional goal. Beechnuts are an important food for more than 40 species, and important to bear reproduction. The Bureau has adopted "beech management guidelines" to assist field staff in assuring the continued existence of beech as a viable component of hardwood stands where they exist within the Plan area.

The Bureau's overall management goal for providing significant amounts of multi-aged forest will enhance wildlife habitat over time aas well.

F. Recreation Resource Summary

The Flagstaff region of the State has rapidly grown into a major four-season recreational use area, comprising a large component of the region's economy. Along with traditional hiking, camping, fishing, hunting, and boating uses, other activities important to the region include sightseeing, snowmobiling, mountain biking, ATV'ing, downhill and cross-country skiing, and wildlife watching. Ensuring a landscape that can accommodate all of these uses without conflict is one of the challenges faced throughout the region.

The region is also home to a portion of the Northern Forest Canoe Trail, a 740-mile historic water trail through New York, Vermont, Quebec, New Hampshire, and Maine. The trail follows water routes once traveled by Native American Indians and later by Europeans. The trail includes the South Branch of the Dead River, Flagstaff Lake, and the Dead River north of Long Falls Dam.

A cross country ski trail and hut system has been proposed by Western Mountains Foundation that would provide a continuous ski trail from the Bethel-Newry area to the Mooshead Lake area. The trail is proposed to cross in proximity to the Bigelow Preserve, utilizing the east shoreline of Flagstaff Lake, then traveling northward towards the Moosehead region.

G. Timber and Renewable Resource Summary

This summary description covers all parcels in the regional plan, although 85% of the regulated acres (those acres used for calculating the Sustainable Harvest Level, or SHL) are within the Bigelow Preserve and the Dead River/Spring Lake Unit, with the remaining 13 lots totaling 15%. With the exception of the Redington Public Lot, the properties are entirely with the ZW 2 Sustainable Harvest Unit (ZW 2 refers to a geographically delineated area where general forest conditions are similar, thus making sustainable harvest calculations feasible).

Timberland Volumes per Acre			
	All Regulated Acres	*Flagstaff Plan Area*	
Bureau Lands only*	**20.93 cords/acre**	**24.32 cords/acre**	
	*Statewide***	*Somerset County*	*Franklin County*
All Lands	**14.54 cords/acre**	**13.83 cords/acre**	**13.88 cords/acre**

** 1999 Bureau inventory, reworked volumes.*

*** "Statewide" is limited to the seven northerly "regions" used for the inventory developed by the US Forest Service, omitting the Capitol and Casco Bay regions. Data is from the 1995 report.*

Because the Plan area lies mostly in the mountainous area of Franklin and Somerset Counties, with some lots in gentler terrain, soil drainage classes cover the full range from excessive to poor. The area is also rich in well-drained and moderately well drained soils where fertility is generally high enough for growing quality hardwoods on most acres. Wet soils comprise a small portion of the forest; excessively drained soils are found mainly near the north shore of Flagstaff Lake, often holding a significant pine (white and some red) component.

IV. Resources and Management Issues in the Flagstaff Plan Area

A. Bigelow Preserve

1. Character of the Landbase

The 35,843-acre Bigelow Preserve is located in Bigelow, Wyman, and Dead River Townships in both Franklin and Somerset Counties. The Preserve is an area of extraordinary scenic beauty, offering rugged mountains, backcountry forests, and high elevation ponds. The seven peaks of the Bigelow Mountain range are traversed by 17 miles of Appalachian Natural Scenic Trail (AT). In addition, there are many miles of blue-blazed side trails managed as part of the AT system.

Most of the Preserve is covered by a healthy and productive forest, which at lower elevations (under 2,200 feet) grows excellent timber at average and above average rates for western Maine. Because of the topography of the Preserve, distinct zones of vegetation exist with increasing elevation. The forest at lower elevations consists primarily of beech, birch, and maple. From 2,000-2,700 feet the forest gradually changes to one dominated by spruce, fir, and white birch. Above 3,000 feet the trees decrease in size until they become low and shrub-like. Near the highest peaks, alpine grasses and flowering plants occupy the treeless summits.

Although dominated by hardwoods, past harvesting activities throughout much of the Preserve has created a relatively diverse environment, home to more than 300 plant and tree species, 100 species of birds, and 26 species of mammals.

Hiking in summer and snowmobiling in winter comprise the most popular uses in the Preserve, although a wide range of activities occur, including camping, cross country skiing, mountain biking, sightseeing, wildlife watching, hunting, and fishing.

2. Acquisition History

The Bigelow Preserve was established by public referendum ("An Act to Establish a Public Preserve in the Bigelow Mountain Area", or "Bigelow Act") in June of 1976 to "set aside land to be retained in its natural state for the use and enjoyment of the public." The referendum was in response to a ski area development that was proposed for the Bigelow Mountain area at that time. The Bigelow Act provided for the long-term acquisition and management of approximately 40,000 acres of land, located on the southerly side of Flagstaff Lake and including the entirety of Bigelow and Little Bigelow Mountains. The Act also stated that the Preserve "shall include generally all land in Wyman and North One Half Township north of Stratton Brook Pond, and all land in Dead River Township south and east of Flagstaff lake. All public lots within or contiguous to this area shall be included within the Bigelow Preserve."

School, ministry, and settled minister lots were "reserved and located" in the unorganized townships of Bigelow (507 acres), Wyman Township (480 acres) and in Dead River Township (960 acres) during the 1840's. The Wyman Lot was later

conveyed in two separate transactions; Chapter 16 of the Resolves of 1971 authorized the Forest Commissioner to “convey certain lots of land in T4 R3 BKP WKR, Wyman Township,” consequently, 17 of the 480 acres were conveyed at that time, with the remaining 463 acres of the lot conveyed to J. M. Huber Corporation in 1976.

The first significant addition to the state’s ownership on Bigelow Mountain came in March of 1976 with a gift of 5,261 acres in Wyman Township from J. M. Huber Corporation. In 1978, with help from the federal Land and Water Conservation Fund, the Bureau of Parks and Recreation acquired 8,465 acres in Dead River Township from the Flagstaff Corporation and Flagstaff Lodge Company, Inc., including most of the area from the lakeshore to the summits within the township. Responsibility for management of both parcels was transferred to the Bureau of Public Lands in 1982.

Subsequent acquisitions to the Preserve, and acquisitions of lands abutting the Preserve include:

August 11, 1978 - 7 acres from Carl W. Demshar in Dead River Twp.
February 2, 1982 - 5,275 acres from Hudson Pulp & Paper Company in Dead River Twp.
October 16, 1989 - 4,274 acres from J. M. Huber Corporation in Wyman Twp.
May 5, 1998 - 30 acres from Richard E. Fotter in Wyman Twp.
April 28, 1998 – 115 acres from Angee Brochu in Coplin Plt. (Range Trail trailhead)
March 29, 1999 - 963 acres from Huber Resources in Wyman Twp. – part of a larger, 2,075-acre acquisition within the township; also included 397 acres in Carrabassett Valley

2. Resources and Management Issues

a. Natural and Geological Resources

Geology and Soils
Some 400 million years ago, sediments accumulated in an ocean basin between two continental plates. These chaotically sorted, magnesium rich sediments probably eroded off a nearby volcanic island or continental margin. The layers of sediments were incorporated into a syncline (large-scale fold) of pelitic rock (mudstone) that was highly metamorphosed by heat from igneous plutons when they intruded the area. The Bigelow ridgeline follows this syncline, and metamorphosed mudstones can be seen on top of the mountain. The regional folding and igneous intrusions occurred as part of the Acadian orogeny, one of New England's three mountain building events.

A northwest striking fault has offset many of the bedrock units on the Preserve. The fault intersects Cranberry Pond on the ridgeline and runs west of East Nubble. This fault, probably related to a network of faults known as the Dead River fault system, caused the northeast side of the fault to be uplifted relative to the southwest side (Caljouw 1981). The soils on the slopes of Bigelow Mt. formed in loamy glacial till. They range from moderately to very deep and well to excessively drained. Soils on the mountain's ridgeline are shallow, often consisting of a thin mantle of organic soil directly on bedrock.

There were several stages of glacial lakes to the north and east of the Preserve. The largest and most stable of these lakes was Lake Bigelow, which filled the basin to 1,178 feet, about 33 feet higher than present day summer lake levels. This lake formed because a till deposit dammed the outlet near the present site of Long Falls Dam. Lake sediments accumulated during Lake Bigelow's tenure, and much of the land that was once under the lake now has a layer of thick clay sediments, while upland areas have more typical till deposits. The bedrock and surficial geologic history of the Bigelow area is covered in detail in the previous Natural Resource Inventory (Caljouw 1981).

Hydrology and Water Quality
Flagstaff Lake, impounded in 1949 by Central Maine Power, covers 20,300 acres, being approximately 14 miles long and 6 miles at its widest point, with a maximum depth of 50 feet, and an average depth of 18 feet. The lake drains a total of 516 square miles.

Wetlands
The Bigelow Preserve and Flagstaff Lake properties contain 1,645 acres of forested wetlands and 1,510 acres of open wetlands; wetlands constitute 7% of the total land area. Most of the open wetlands occur around or near Flagstaff Lake, though significant open wetlands also occur south of the Bigelow range, along Stratton Brook.

Ecological Processes
Ice, wind, and cold temperatures on the upper slopes of Bigelow limit the number of species that can successfully live there. "Krummholz" (meaning "crooked wood") is the term used to describe the balsam fir, black spruce, and heart-leaf paper birch that

populate this harsh environment. As the name implies, the growth form of these species under these conditions tended to be low, dense, and shrub-like, creating a virtually impenetrable dwarfed forest of trees up to ten feet tall.

Elevational gradients are pronounced on Bigelow Mt. Traveling up slope, the wind increases, precipitation increases, and temperatures decrease. These factors have conspired to create distinct habitats – and therefore distinct plant communities – as one travels up slope. Low elevation flats are softwood dominated. Hardwoods dominate on the lower slopes of the mountain, while spruce and fir communities become more prominent as elevation increases. The transition zone between hardwood and spruce/fir takes place at a lower elevation on the northern side of the mountain than on the southern side, because the northern side is cooler and more shaded than the southern side. Growing conditions continue to become harsher as one gains elevation, and close to the summit, krummholz appears. Lastly, fee trees have survived Bigelow's exposed, windswept summit. Vegetation at the summit is characterized by small plants with specialized adaptations to cope with these challenging growing conditions.

Beavers have been active in the area in many of the lower elevation wetlands surrounding Flagstaff Lake and in at least one of the higher elevation tarns. By creating and abandoning impoundments along the stream course, beavers have created a mosaic of habitats for other plant and wildlife species such as wading bird and waterfowl habitat, particularly along Stratton Brook.

Fire has played a role in natural disturbance on the Preserve, both in the northwest and on the southern slopes (Caljouw 1981). Forest fires in New England tended to be relatively small-scale events triggered by lightening strikes. The fires opened up patches of forest that are typically recolonized by fast growing, short lived species such as aspen and paper birch. This patchy disturbance contributed to the uneven and diverse forest canopy we now see. The forest landscape today, however, is not a fire-dependant ecosystem.

The higher elevations of Bigelow Mt. show considerable spruce budworm damage. Althgough balsam fir is the preferred food of the budworm, the krummholz community dominated by fir has been an easy target for the pest. The most recent outbreak occurred in the 1980s, though budworm damage has been difficult to fully assess against the backdrop of wind and ice damage. At higher elevations, the budworm damage combined with wind and weather effects to create larger and more frequent gaps.

A large number of rare plants are known on the Preserve, including aquatic and alpine species. Both water awlwort (*Subularia aquatica*) (S2) and Vasey's pondweed (*Potamogeton vaseyi*) (S1) have been found in the shallow margins of Flagstaff Lake. Wiegand's sedge (*Carex wiegandii*) (S3) was found in the wetland complex north of Cranberry Peak, and little shinleaf (*Pyrola minor*) (S3) was found in the drainage just west of East Nubble. A population of alga pondweed (*Potamogeton confervoides*) (S2) has been found in the Horns Pond. West Peak and Avery Peak host alpine species including boreal bentgrass (*Agrostis mertensii*) (S2), Bigelow's sedge (*Carex bigelowii*) (S2), mountain sandwort (*Minuartia groenlandica*) (S3), dwarf rattlesnake root (*Prenanthes nana*) (S1), alpine sweet-grass (*Hierochloe alpina*) (S1), and alpine

blueberry (*Vaccinium boreale*) (S2). In all, ten populations of rare plants are located on West Peak and Avery Peak. Fragrant wood fern (*Dryopteris fragrans*) (S3) was found growing on seepy cliff walls on the south side of Little Bigelow.

Natural Communities: Wetlands

The lowlands surrounding Flagstaff Lake and the base of the Bigelow range support a number of wetlands. There are two exemplary wetland communities south of Bigelow Mountain. A Mixed Tall Sedge Fen is located on the 270-acre, privately owned Jones Pond inholding. A ten-acre Mixed Graminoid Shrub Marsh is located near the Fire Warden Trailhead on Stratton Brook.

The north side of Bigelow Mt., supports an extensive Streamshore Ecosystem along Hurricane and Trout Brooks. This exemplary ecosystem includes Alder Shrub Thicket, Spruce – Fir – Cinnamon Fern Forest, Tussock Sedge Meadow, and Northern White Cedar Woodland Fen natural communities. The slow moving streams that meander through the wetland are influenced by beavers.

Natural Communities: Uplands

Flagstaff Peninsula contains a transitional White Pine – Mixed Conifer Forest that shows evidence of a harvest roughly 60 years ago, followed by a burn. Scattered aspen and red pine are in the overstory, while the understory is comprised of red spruce, fir, and white pine.

East Nubble, a rocky knob on the north side of Cranberry Peak, has a small but exemplary Spruce – Fir – Broom-moss Forest and an exemplary Spruce Talus Woodland. The Spruce – Fir – Broom-moss Forest covers the East Nubble Summit. Core ages of spruce trees ranged from 115 to 260 years, and total basal area was found to be 140 ft^2/acre. The dominant understory species include fir, paper birch, and red spruce regeneration, and Canada mayflower (*Maianthemum canadense*). The Spruce Talus Woodland, on the north side of East Nubble, is mostly open talus with a 70% slope. Scattered red spruce and heart-leaved paper birch are present along with small patches of Labrador-tea (*Ledum groenlandicum*).

On the south slope of Bigelow Mt., within the Ecological Reserve between the Fire Warden's Trail and the Horns Pond Trail, are two exemplary natural communities. A Spruce – Fir – Feathermoss Forest is dominated by red spruce with lesser amounts of white pine, balsam fir, and red maple. Most trees in this area are 12 to 16 inches in diameter, and one spruce was aged at 121 years. The exemplary Beech – Birch – Maple Forest is dominated by sugar maple, which comprises 75% of the basal area. Yellow birch (*Betula alleghaniensis*), hophornbeam (*Ostrya virginiana*), and beech (*Fagus grandifolia*) are also present in minor amounts. The oldest tree in the community was 152 years old.

The southwest side of Little Bigelow Mountain is characterized by very steep and exposed vertical walls. A Beech – Birch – Maple Forest runs along the base of the cliffs down to the power lines. Portions of this forest have been harvested in the past; however, the steeper slopes show no evidence of recent harvests. The granitic cliffs have steep gullies cutting through them and areas of large, blocky talus below them in

places. Rusty cliff fern (*Woodsia ilvensis*), common hairgrass (*Deschampsia flexuosa*), and pale corydalis (*Corydalis sempervirens*) grow among the talus, while fragrant wood fern (*Dryopteris fragrens*) (S3) was found on the seepy cliff walls. These cliffs constitute an exemplary Acidic Cliff – Gorge natural community.

Natural Communities: Alpine

An exemplary Fir – Heart-Leaved Birch Subalpine Forest tops Little Bigelow's acidic cliffs. This community consists of variously stunted to moderately sized balsam fir forests, depending largely on exposure. The shady understory is dominated by a dense growth of mosses with gold thread (*Coptis groenlandica*) and creeping snowberry (*Gaultheria hispidula*). Two more exemplary examples of this community are found on Cranberry Peak and on an area that covers the Horns and West and Avery Peaks.

An exemplary Dwarf Heath – Graminoid Alpine Ridge tops Avery and West Peaks. The area is dominated by dwarf shrub heath and krummholz associates and is surrounded by sub-alpine spruce-fir forests.

Horns Pond is considered an exemplary tarn, or small lake formed by glaciers. The steep sides of the pond and a shallow lip at the outlet have contributed to relatively stable water levels.

Cranberry Pond is as a monomictic, mesotrophic lake, a shallow lake with moderate nutrient levels and water that doesn't mix or turn over with changes in the seasons. The pond's bouldery shoreline and shallow, organic lake bottom have been influenced by beavers in the past. The shallow grade of the pond created large areas of emergent aquatic plants that alternate with the mucky, unconsolidated pond bottom.

Natural Resource Management Issues

- Alpine areas are uncommon in Maine, occurring only on the tops of Maine's tallest mountains. The plants that grow in these conditions grow very slowly, are often uncommon or rare and require additional protection.

b. Historic and Cultural Resources

Native Americans
The presence of Native Americans was evident along the historic footprint of the Dead River, as determined by archaeological site excavation undertaken by the Maine Historic Preservation Commission.

Arnold Trail Historic District
The area that lies in proximity to the original course of the Dead River prior to the construction of Long Falls Dam creating Flagstaff Lake, including the shoreline abutting the Preserve, is likely to contain important archaeological resources. There is potential for historic artifacts throughout this region.

Bigelow Fire Tower
A wooden fire tower was built on Avery Peak in 1905, and was replaced by a 38' steel tower in 1917. The tower was lowered to 20' in the 1930's due to the severe winds. A wooden groundhouse and stone foundation was constructed in1965 to replace the existing tower; the remains of which are still found on the summit. The Maine Forest Service decommissioned the tower in the late 1970's.

Nomenclature
The origin of the word "flagstaff" is presumed to have come from the Arnold Expedition, when Benedict Aronld planted a "flagstaff" outside his tent in an area near what is now called Flagstaff Lake. Bigelow Mountain is presumably named for Major Timothy Bigelow of the Arnold expedition, who was said to have climbed the mountain in the hope of seeing the spires of Quebec. The Myron H. Avery Peak was named for the first Potomac Appalachian Trail Club president, serving in that post from 1927-1940. Stratton Brook and Stratton Brook Pond located along the southern boundary of the Preserve are named after the Stratton family who were early settlers in the region. Jim Eaton Hill, on a peninsula in the lake, is named for a farmer who once lived in that area. Stafford Brook, which flows into the lake from the south, was named for the Stafford family who settled there in the 1880s. Streams along the north bank of the lake include Butler Brook, named for William Butler, an early settler who came to the area during a minor gold rush. Nearby Becky Inlet is named for Becky Butler whose two children are said to have drowned there. Viles Brook is named for another family of early settlers. The Round Barn camping area was named after a barn located in that location prior to the construction of Long Falls Dam.

Historic-Cultural Management Issues

- Plans for any ground disturbance near the 1150' contour should first be referred to the Maine Historic Preservation Commission who can determine if carrying out that plan would disturb any important resources.

c. Fisheries and Wildlife Resources

A key feature of the Bigelow Unit is the 10,540-acre Ecological Reserve located along the Bigelow Mountain ridgeline, with its “arms” extending downward from the north and south sides to capture the elevational gradient. Rock voles have been found in the talus, which is their preferred habitat.

There are two mapped bald eagle nests on or near the Preseve, one near the mouth of Hurricane Brook and the other on an island at the western end of Flagstaff Lake. There is a historic peregrine falcon nesting site at Old Man’s Head west of Stafford Notch. This site is monitored frequently for nesting peregrines, although none has been documented for some time.

The alpine and subalpine habitats along the spine of the mountain provides critical habitat for high elevation songbird species, including Bicknells thrush, and boreal chickadee. Bicknells thrush, a species of special concern, is the focus of a volunteer monitoring project coordinated by the Vermont Institute of Natural Science. A high-elevation bird survey route is run annually by a volunteer on the east end of the mountain.

There are no mapped deeryards on the Preserve, although staff continue to aerially monitor for this activity. Deer are common on the west side of the mountain where several Stratton residents have had feeding stations.

Significant winter draw downs limit the fishery on Flagstaff Lake, with most species being of the warm water variety, along with occasional brook trout. A resident Canada goose population on the lake is heavily hunted in September. The lake generally provides poor waterfowl habitat, except for the sedge meadows where the North Branch of the Dead River enters the lake in Eustis village. A Tomah mayfly population (on the federal endangered list)) is found in these seasonally flooded sedge meadows. Wetlands associated with streams draining into Flagstaff Lake also provide good waterfowl habitat - especially Reed Brook and Hurricane Brook. The Bureau has placed waterfowl nesting boxes at Hurricane and Stratton Brooks, and are used primarily by hooded mergansers and common goldeneyes.

Wildlife Management Issues

- Forestry and recreation planning need to take the habitat needs of rock voles, high elevation birds, and bald eagles into consideration.

d. Recreation and Visual Resources

Facilitates and Opportunities
The Bigelow Preserve offers a wide variety of recreational opportunities, from vehicle accessible areas to backcountry areas. The goal of the recreational use program is to provide activities consistent with the natural and undeveloped character of the Preserve as prescribed in the Bigelow Act. These include backpacking, camping, snowmobiling, hunting, fishing, boating, and cross-country skiing. Motorized uses in the Preserve are limited to snowmobiling, and to the use of public use roads designated at the time the Bigelow Act became law.

Hiking in the Preserve is one of the more popular activities. The Maine Appalachian Trail Club (MATC) maintains 17.6 miles of the Appalachian Trail (AT) through the Preserve, and an additional 14.8 miles of side trails in connection with the AT. Side trails include the Fire Wardens Trail (4.6 miles), Horns Pond Trail (2.4 miles), Range Trail (4.6 miles), and the Stafford Brook Trail (2.2 miles). There are 5 trailheads providing access to this system, including the Range Trail trailhead to the west, an AT northbound trailhead near Route 27, an AT southbound trailhead to the east, the Fire Wardens Trail trailhead to the south at Stratton Brook Pond, and the Stafford Brook Trail trailhead to the north off from the East Flagstaff Road. The Stratton Brook Pond trailhead was recently moved back 4/10 of a mile from its original location along the brook, although vehicles can still travel the rough road to the original site, although. discussions have taken place regarding closing this section of road to vehicular use. The popularity of the trailhead and heavy use of the Fire Warden's Trial and Horn's Pond Loop has also been cause for discussion of developing alternatives to this section of trail.

Campsites include vehicle drive-to/walk to access at Round Barn (9 individual sites, 1 group site), Stratton Brook Pond (2 sites), Stratton Brook Pond (1 site, access by 4-wheel drive), Little Bigelow Gravel Pit (1 site), Trout Brook North (4 sites) and Trout Brook South (1 site).

There is hike-to camping is in conjunction with the Appalachian Trail system, including Cranberry Stream (4 sites), Horns Pond (2 lean-tos, 7 sites, caretaker site), Moose Falls (3 sites), Avery Col (5 tent platforms), Stafford Notch (2 tent platforms, 7 sites), and Little Bigelow (1 lean-to, 4 sites)

Water access camping is available on Flagstaff Lake at Savage Farm (4 sites), Ferry Farm (2 sites) and Parson's Brook (group site). Ferry Farm and Parson's Brook can also be accessed on foot. Camping also occurs along other areas of the shoreline in undesignated areas.

There are approximately 6 miles of designated, ungroomed cross-country ski trails on the south side of the range, along the 1960's haul road, and the so-called Hurricane Cut-off. There are loop trails proposed for both the south and north sides of the range. A one-mile section of the Western Mountains Foundation ski trail system will need to be located in the southwest corner of the Preserve once the trail location on adjoining private land is determined.

Snowmobiling in the Preserve is limited to designated trails, which includes 2 ungroomed trails that connect to Flagstaff Lake, and a 42-mile loop trail around the Bigelow Range - 31 miles of which are located on the Preserve. Access to this loop is located on private land off from Route 27 in Carrabassett Valley, and to west in Stratton. Access points and winter trail grooming and maintenance have been provided by the J.V. Wing and Arnold Trail Snowmobile Clubs.

A hand-carry boat access site at the Round Barn camping area is the only designated site in the Preserve. This site is also available for trailered launching during the goose hunting season beginning October 1st. There are other designated boat access sites on Flagstaff Lake located outside of the Preserve, mostly as a result of the Federal Energy Regulation Commission (FERC) hydro license issued to Florida Power and Light (FPL). One is a concrete-planked trailerable site located on the South Branch of the Dead River in Stratton, on property owned by the State through the Boating Facilities Division of the Bureau. The Division has a 30-year lease with the Town for Stratton for maintenance and management of the site, for which FPL provides assistance. Although it is considered a primary access point onto Flagstaff Lake, larger boats have had difficulty getting to the lake during periods of low water. FPL also provides maintenance for two other sites on the east side of the lake, one of which abuts the Preserve at Bog Brook. There are a number of private camps at this location, with parking being very limited.

Informal launching of hand-carry and trailered boats also occurs on the Bureau's Myers Lodge property in Flagstaff Twp.; canoeing to and camping on the Savage Farm campsite area on the Preserve from this location is a popular activity. Within the Preserve, informal launching occurs off the West Flagstaff Road at Trout Brook and Cold Stream. These areas are only suitable for use of hand-carried watercraft as there is a considerable drag required when launching boats at these locations.

Mountain biking in the Preserve is becoming more popular, taking place mostly along the 1960's haul road. There is also incidental use of the logging and other roads for walking, bicycling, horseback riding, skiing, and dog sledding. Designated trails for mountain biking have been discussed in recent years.

Bigelow Lodge

The Bigelow Lodge is open weekends during the winter, and is a popular lunch spot for winter recreationists, most of which are snowmobilers. In the summer months, the lodge is available for use by organized groups who have an interest in helping achieve the business and objectives of the Department of Conservation. These groups may also rent the lodge for overnight use.

Visual Considerations

The Preserve has been designated by the U.S. Department of Interior as a National Natural Landmark. One of the primary considerations for the establishment of the Preserve was to maintain its visual quality. Public enjoyment of the Preserve is dependent upon the assurance that views from the lower elevations looking up at the ridgeline, as well as views from the higher elevations looking over the Preserve, are of the highest quality possible.

Along with background views, visual quality of the foreground areas as seen from public roads and public use areas is also important in managing the natural character of the Preserve. Visual management is also an important consideration when planning timber management activities.

Recreation/Visual Management Issues

- Camping at the Trout Brook site has become increasingly popular, resulting in negative social impacts from this use.
- A plan for use and management of the Bigelow Lodge needs to be finalized.
- Look into expanding water access camping opportunities along the shoreline.
- Explore the feasibility of establishing an alternate route to the Fire Warden/Horn's Pond Loop Trail.
- Determine the status of the vehicle access road between the former and newly constructed trailhead at Stratton Brook Pond.
- In view of the Bigelow Act, recreation management activities will have to be undertaken with special consideration to the natural appearance of the landscape.
- Assist in locating a one-mile section of cross-country ski trail in the southeast corner of the Preserve as part of the Western Mountains Foundation ski trail system.
- Address a request for designating mountain bike trails.

e. Timber and Renewable Resources

This description includes the Bigelow Preserve, and the recent acquisition of adjoining land in Wyman Township between the Preserve boundary and Route 27. Bigelow Mountain dominates the landscape, but most of the acreage is on lower slopes and the surrounding flatter land. Even so, more than one third of the forest acreage is unregulated, most lying in the 10,540-acre Ecological Reserve. Several thousand acres of reserve forest is inoperable slope and/or noncommercial high altitude land; over 4,000 acres of the Reserve forest is of a quality, species mix, and volume comparable to the adjacent regulated area.

Prior to state acquisition, most of these lands had been harvested in the 1960s and 1970s, with the heaviest cuts taking place in Bigelow Township. However, some north-facing portions of Dead River Twp. have not been harvested since 1957 or before, about the time the land was cleared in preparation for Flagstaff Lake. This involved several large wildfires which established aspen stands covering hundreds of acres near the lake. While no harvesting by the Bureau has occurred on the Wyman Twp. parcel, operations did began on the Preserve in late 1982, and have continued almost every year since. Nearly all harvest have been of the selection variety, designed to create or maintain multi-aged stands. The 23-year harvest volume of 82,000 cords is barely half of the maximum sustainable harvest level determined for the regulated portion of the Preserve.

The Preserve acres hold relatively high inventories, averaging almost 25 cords per acre, with 40% of the regulated forest in types with stocking near or above 30 cords per acre. Though a large number of low quality trees remain, often the result of highgrading cuts

prior to State ownership, most stands have a solid proportion of high quality stems, often of large size. Due to the extent of careful Bureau harvesting, there are no major silvicultural "emergencies." However, many stands would best have been treated 10-20 years ago, and though the opportunity to benefit these stands remains, it needs to be accomplished soon. The major area in this condition is the north slope on Dead River Township. The access is mainly in place, with only branch roads needed for future harvests. The forest here holds fine opportunity to manage late successional stands for high value timber products while maintaining/enhancing the ecological characteristics of such stands.

Stand Type Characteristics (regulated acres only):

Softwood types cover about 3,200 acres, or 13% of the regulated acres. Most are found on moderately well to somewhat poorly drained sites, with a lesser amount in areas of poor drainage, and some pines with excessive drainage. Most are reasonably well stocked, with spruce (nearly all red spruce) making up about half the volume. Cedar and fir share another 30%, with white birch, pines (mainly white pine), and red maple at 4-6% each. Most softwoods, except cedar are of good quality; though significant fir and some spruce is mature to overmature. The cedar, like most in the Bureau's Western Region, is generally of low quality. Spruce is the key management species except on droughty sites where pine should be favored (pine should be encouraged in all stands), and in cedar swamps, which will receive less frequent management activity. Areas currently in softwoods should usually be managed to stay in the type, and some mixedwood (and aspen/fire) type are on sites better suited to growing spruce, fir, and pine.

Mixedwood types are found on about 10,300 acres, 42% of the regulated area. They are found on all sites but the wettest and driest. The mixedwood types average a bit less volume per acre, about 24 cords, while softwoods run 25 cords and hardwoods 26 cords, but quality is usually good. Spruce is 28% of type volume, and another 27%-28% is split between fir and red maple. White birch, cedar, yellow birch, and sugar maple area next, descending from 9% to 6%. Hemlock is only 4% of the type volume, but is much more abundant in some areas, especially north of the ridgeline. Management should favor spruce in most areas, pine where it occurs, and northern hardwoods (yellow birch, beech, sugar maple) on the more fertile soils. Much of the fir is mature, but a lot of the sapling stocking is fir, so its representation is likely to remain significant. Though important in northern hardwood stands, red maple should usually be discriminated against elsewhere, in favor of spruce/pine/more valuable hardwoods.

Hardwood types cover about 11,000 acres, 45% of the tract. There are two distinct subtypes within the broad type. About 8%-10% is intolerant hardwoods, labeled as aspen or fire type. Most were established around 1950 by wildfires connected with land clearing for the impoundment, though there are occasional older aspen stands. Most of this type is dominated by quaking aspen approaching maturity, past maturity on poorer sites, and often holds abundant spruce, fir, and pine saplings in the understory. White birch and big tooth aspen are also significant components, with frequent pockets of spruce and fir, and occasional pine. Nearly 300 acres of this type, 25%-30% of its occurrence on the Preserve, was thinned during 2004 to release the desirable regeneration while taking advantage of the excellent aspen markets. This subtype has a volume per acre lower than the tract average, due to some occurrences on softwood

sites with low fertility. However, it also holds over 600 stems per acre of 2-4" diameter fir and spruce, a sign of where many of these acres are headed. Management in this type should concentrate on recovering much of the value of the mature aspen and birch in a way that protects the Bigelow view sheds, and that retains most of the desirable softwood regeneration. If these stands were not on the Preserve, some progressive patchcuts for ruffed grouse would be recommended, which might still be possible on a smaller scale.

The remainder of the hardwood type is essentially all northern hardwood acres with heavy volumes, often above 30 cords per acre. Both site and tree quality are usually good to excellent; there are numerous lower quality stems but almost all areas in this type have tall, straight, sound trees in quantity. If there is a characteristic type for the Preserve, and for the Flagstaff Plan area, it is these stands. Sugar maple is the key species, making up a third of subtype volume. Beech and yellow birch split another 25%, but are quite different in character. The beech average stem diameter is just under 9" while yellow birch is 11.6", a very large average stem and similar to the sugar maple, which averages 11". After the three northern hardwood species comes spruce at 10% of volume, followed by red maple at 8%, white birch at 6% and fir at 5%. These stands often have a significant number of trees larger than 20", and most acres would qualify as late successional forest. Careful selection harvests can readily accomplish and maintain successional quality, while growing and selling high value timber.

Timber Management Issues

- Mature aspen in the Preserve requires management; however, it will have to be done to protect visual quality, while working to capture the inherent timber value.
- Maintaining late successional quality through selection harvesting will need to be carefully planned.
- There is a need to retain and favor softwood sites where it may enhance deer wintering activities.

f. Administrative Concerns

Leases and Agreements

The privately owned "Wing" camp, adjacent to the Bigelow Lodge, has been located on the property since the late 1930's. No lease or agreement is in place for this structure, in that the owners have made a historic claim to the camp and footprint dating back to before the creation Flagstaff Lake.

The Bureau has a utility line lease with Somerset Telephone for an underground cable that extends from the Long Falls Dam road to the camps on the Bog Brook Road. This is a 25-year lease, which ends in 2014, although there are provisions within the current lease for its renewal.

A historic right-of-way to the privately owned portion of Gurnsey's island, located more than three miles past the Lodge, has been in place, but needs to be clarified.

Public Use and Management Roads, Gates and Road Control

Public Use roads, and roads for vehicular traffic within the Preserve are limited to the following (as of the 1989 Management Plan):

- West Flagstaff Road, terminating at Hurricane Brook
- Stratton Brook Road, terminating at or near the outlet of Stratton Brook Pond
- East Flagstaff Road to the Round Barn campsite area. The road extending beyond the Round Barn campsite area will not be maintained for public vehicular traffic, but will remain open provided there is no environmental damage or inappropriate use resulting from its use.
- Houston Brook Road terminating at Cold Brook – this road is for administrative purposes only.

Fire Control

NEED TO BE COMPLETED

Administrative Structures

The Bigelow Lodge is used as a base of operations to accomplish the management objectives of the Preserve. A plan of operations needs to be finalized regarding its future use by the public.

Administrative Concerns/Issues

- Right, title, and interest for use of the private camp near the Bigelow Lodge needs to be established if is use as a residential camplot is to continue.
- Clarify the right-of-way to Gurnsey's Island.
- Finalize a plan of operations for the Bigelow Lodge.

B. Mount Abraham (Mt. Abram)

1. Character of the Landbase

The 6,214-acre Mt. Abraham property includes the two summits and most of the northeast side of the mountain. Known locally as Mt. Abram, it is the ninth tallest mountain in Maine at 4,050 feet, and is characterized by very steep and rugged talus slopes, particularly on the northern and eastern sides. The extensive, treeless alpine area covers 200 acres on the northwest summit, and 150 acres on the southeast summit. The abundance of talus distinguishes Mt. Abram from other mountains in Maine. The mountain also has a striking and rugged appearance from the valley below.

In 2001, the Bureau completed the first phase of the Mount Abraham acquisition when it purchased 1,028 acres in Mt. Abram Twp. from Plum Creek Timberlands. A second phase included two parcels first acquired by the Appalachian Trail Conference (ATC), that were then given to the state in 2002. These parcels include 2,988 acres in Mt. Abram Twp., including most of the eastern and southern portions of the summit; and an adjoining 1,045-acre parcel in Salem Twp, along the southern portion of the mountain. These parcels were together deeded as an Ecological Reserve in order to protect the important natural communities that occur on the property. An easement on these parcels was also conveyed to The Nature Conservancy at the time the ATC acquired the property; the purpose of the easement is ensure the protection of the Ecological Reserve. A fourth parcel (1,153) was acquired by the Bureau directly from the Mead/Westvaco Oxford Company in 2004, and includes the remaining summit area to the west and southwest. This acquisition has also been earmarked for inclusion in the Eclogical Reserve.

2. Resources and Management Issues

a. Natural and Geological Resources

Geology and Soils

Prior to the Acadian orogeny (375 million years ago), one of the three major mountain building events in New England, sediments accumulated in an ocean basin between two of the earth's plates. Once these plates collided, the sandstone and mudstone from the basin were folded and deformed under pressure, building mountains. These folded rocks form the bedrock of Mt. Abraham.

Glaciers have also left their mark on the mountain. The most recent ice sheet in New England, 12,500 years ago, moved from northwest to southeast. As a consequence, the ice smoothed the northwest side of the mountain and left the southeast side relatively rough. Glaciers also left a layer of till on the mountain, with thin deposits near the summit and thicker deposits downslope. Once the ice retreated, the relatively porous metamorphosed standstone on the summit of the mountain was exposed to the weather. Repeatedly, water seeped in to small cracks and pores in the rock, then froze and expanded, wedging the rock apart and deepening the formerly small cracks. This

process, called frost wedging, is responsible for the mountain‘s distinct mound of talus at the summit.

Soils on the property reflect their glacial heritage; many of the soils are based in glacial till or other glacial deposits and are very stony. Soils at the summit and along the upper ridgeline are well drained, and tend to have a thin organic layer overlying rock fragments and till. Further down slope, soils become more variable, with drainage ranging from somewhat poorly to somewhat excessively drained and soil depth varying with topography.

Hydrology and Water Quality
Numerous small, forested streams drain the mountain, occasionally forming small pools below steep drops in elevation. Most of the property drains to the Carrabassett River, while the southeast side drains to the Sandy River.

Wetlands
There are no wetlands on the property.

Ecological Processes
Ice, wind, and cold temperatures at the top of Mt. Abraham limit the number of species that can successfully live there. Krummholz of balsam fir, black spruce, and heart-leaf paper birch that populate this harsh environment.

Spruce budworm damage is evident along the ridge of the mountain. Although balsam fir is its preferred food, the fir-dominated krummholz community was also targeted. The most recent outbreak occurred in the 1980s, though the damage was difficult to assess against the backdrop of wind and ice damage.

The hardwood communities on the property show evidence of typical small gap disturbances from ice, windthrow, and natural tree mortality. These gaps have increased to complexity of forest structure, and have added to the diversity of microhabitats in the forest for plants and animals.

Rare Plant Species
Both the northwest and southeast summits of Mt. Abraham host a number of rare alpine plant species. Lapland diapensia (*Diapensia lapponica*), a plant with a low, “pincushion” shape, is found on both summits. Alpine blueberry (*Vaccinium boreale*) and northern comandra (*Geocaulon lividum*) are also on both summits. The northern comandra tends to have a patchy distribution in the alpine area, tucked in among sheep laurel, blueberry, and krummholz vegetation. In addition, the northwest summit hosts a small patch of Bigelow’s sedge (*Carex bigelowii*) near the fire tower, which has been partially trampled by hikers. Lastly, a single individual of a rare hybrid birch (*Betula x minor*) (S1) has been found on the southeast slope of the northwest summit.

Hornemann’s willow-herb (*Epilobium hornemannii*) (S1) has been found in several shaded, moist, rocky drainages on the east side of the mountain including Norton Brook. Northern firmoss (*Hupersia selago*) (S1) was also found along the margins of Norton Brook.

Natural Communities

The most distinctive feature of the mountain is the summit, and the host of exemplary natural communities found there. All of the communities described below are considered exemplary.

The majority of the northwest alpine area can be classified as a Crowberry-Bilberry Summit Bald. Alpine bilberry (*Vaccinium uliginosum*), Labrador tea (*Rhododendron groenlandicum*), sheep laurel (*Kalmia angustifolia*), low sweet blueberry (*Vaccinium angustifolium*), mountain cranberry (*Vaccinium vitis-idea*), heart-leaved birch (*Betula cordifolia*), and fruiticose lichens dominate the treeless area. Patches of Spruce – Fir – Krummholz, with black spruce (*Picea mariana*) and balsam fir (*Abies balsamea*), are common in this area and form a lower elevation apron around the exposed alpine habitat.

A small example of a Diapensia Alpine Ridge occurs on the northeast slope along either side of the Fire Wardens Trail. Abundant amounts of *Diapensia lapponica* and purple crowberry (*Empetrum eamesii*) are characteristic of this area.

The southeast summit of Mt. Abraham is much like the main summit. Steep talus slopes dominate the alpine zone with beds of ericaceous vegetation and krummholtz mixed throughout the community. The area above treeline is again a Crowberry-Bilberry Summit Bald, with alpine bilberry (*Vaccinium uliginosum*), Labrador tea (*Ledum groenlandicum*), mountain cranberry, black spruce, and heart-leaved birch. Spruce-Fir-Birch Krummholtz is found at the bottom of the talus slopes and in the saddle between knolls. A dense thicket of stunted black spruce, balsam fir, and heart-leaved birch characterize these areas. The substrate is organic with peat and lichens. A line of cairns passed through this area and a small amount of trampling was noted.

The base of the talus slope along the Fire Wardens trail on the north slope has a one to two acre Labrador Tea Talus Dwarf-Shrubland. Dense patches of Labrador tea (*Rhododendron groenlandicum*), black crowberry (*Empetrum nigrum*), and sheep laurel (*Kalmia angustifolia*) with six to ten foot tall black spruce (*Picea mariana*) characterize this area.

Natural Resource Management Issues

- Fragile alpine areas can be trampled by hikers who stray off trail.
- Snowmobile and ATV use has been noted in the subalpine forest and even into the alpine zone. Vegetation (including rare plants) in these areas grows slowly and is slow to recover from damage; this area is within the Ecological Reserve.
- Roads on the property have some rutting and erosion. A decision must be made on how and where to block the one road now within the Ecological Reserve, and how much effort needs to be made to put the road to bed.
- The recent Mead/Westvaco purchase should be evaluated for inclusion as an Ecological Reserve.

b. Historic and Cultural Resources

Logging in the area was accelerated in 1871 by the arrival of the Sandy River Railroad to the region. According to Austin Cary's survey in 1895, of the 335 square miles in the drainages of the Sandy and Carrabassett Rivers, only 15% of the total land remained uncut. Mt. Abram Township was settled only in the late 1800s, with a logging camp at the settlement of Barnjum near the Madrid line west of the mountain. The townships in this area tended to have medium sized parcels owned by small companies. In the 1950s, 15,000 acres surrounding Barnjum was purchased as a country estate. Much of this and other land was then acquired by Boise Cascade after 1979, and thereafter by Mead Corp. (Cogbill 1998).

A 20 foot steel fire tower was erected on the summit in 1924, and rebuilt in 1936, presumably because of ice damage. What remains of the tower is located on the portion of the property recently acquired from Mead Westvaco in 2004. The warden's camp, located on the hiking trail along the east side of the mountain was probably constructed about the time of the tower. The "L" shaped log addition was built onto the camp in 1956 or 1957, to provide more living space for Warden Harris and his wife.

c. Fisheries and Wildlife Resources

The most prominent feature of this unit is the 4,033-acre Ecological Reserve, which encompasses most of the summit of this 4,050 foot mountain. The Bureau has conducted two high elevation bird surveys along the old Warden's Trail on the east side of Mt. Abraham and along the Appalachian Trail on Spaulding Mountain in cooperation with the Vermont Institute of Natural Science. The focus of these surveys is Bicknells thrush. Because this thrush breeds in alpine and subalpine habitat, an area quite limited in Maine and the northeast, it is a species of special concern. Observations of a number of other high elevation birds, such as winter wren, Swainson's thrush, red-breasted nuthatch, black-capped chickadee and brown creeper have also been recorded from the survey.

The extensive talus slopes on all sides of the mountain provide optimal habitat for rock voles. The streams draining the mountain are extremely steep, frequently jumping their channels to form new channels.

Fisheries information was not immediately available for the streams on this parcel

Wildlife Management Issues

- Recreational uses of the mountain need to be monitored to minimize impacts to high elevation bird habitat.

d. Recreation and Visual Resources

Facilities and Opportunities

The principal recreational use of the property is the hiking trail system to the summit of Mt. Abraham. There are no overnight camping facilities on the property, although hikers

have been known to utilize the cab remains of the fire tower on the summit for that purpose. The trail to the summit has been informally maintained over the years by the Bates Outing Club.

There are essentially two trailheads on the property; the traditional trailhead along the main access road where it first comes onto the property from the West Kingfield Road, and a second, informal trailhead is along the same trail but closer to the summit. This second area resulted from road improvements made by the previous landowner. The trail from here leads directly to the old fire warden's cabin, which has been open and available for use by the public for many years. The cabin is considered unsafe, however, due to a general lack of maintenance. From the cabin the trial ascends steeply to the summit.

From the northwest summit of the mountain, a blue-blazed side trial connects to The Appalachian Trail, which is managed as part of the AT system.

The Salem Snowmobile Club maintains a trail that passes along old roads skirting the southern and eastern boundary of the property. Sporadic bootleg use does occur between Mt. Abraham and Spaulding Mountians (east to west) and attempts (by ATV's also) to climb the summit of Abraham from the southwest have become more frequent.

Visual Considerations.
Visual concerns on this parcel will include the foreground views from the access road into the property, and the hiking trail and trailhead. Much of the road was constructed by the previous owner for timber management purposes only, and will require some visual improvements over time. Some portion of the regulated parcel is also visible from the mountain; visual considerations will need to be included in any planned timber harvesting.

Recreation/Visual Management Issues

- The original Mt. Abraham trailhead has been used little since a timber management road improved by the previous landowner has provided hikers with an ad hoc parking and trailhead area 1 ½-2 miles closer to the summit.
- The old camp Fire Wardens camp is unsafe, but is still utilized.
- The remains of the old fire tower on the summit need to be removed.
- Snowmobiles and ATV's are able to access the summit from the west side of the mountain on the recent Mead-Westvaco acquisition.
- The foreground visual quality from the access road needs improvement
- Formalize a trail maintenance agreement with the Bates Outing Club

e. Timber and Renewable Resources
The only area outside Ecological Reserve status is the 1,028-acre area purchased from Plum Creek. It lies on the east edge of the overall tract, and is the area lowest in elevation. This forest is not appropriate for Ecological Reserve designation due to several hundred acres of softwood plantations (mostly red pine and white spruce, with a bit of black spruce), and hundreds more acres of recent and heavy partial cuts within the past 20 years. The remainder of this parcel is mostly low quality and understocked

hardwood over dense hardwood regeneration. Naturally occurring softwoods (mostly spruce) are found mainly in small areas not recently harvested. This parcel will be managed in similar fashion to Bureau forest land elsewhere, with the plantations being replaced by natural regeneration as the trees mature and are harvested.

The Ecological Reserve forest includes considerable steep and/or infertile land that has never been harvested. However, it also includes some 1,500 acres in late successional stands, mostly northern hardwoods and northern hardwood/spruce-fir, all on the east slope above the softwood plantations.

One pocket of extremely large and old red spruce, showing recent mortality, was noted southwest of the warden's cabin, on operable terrain that is now part of the Reserve. Depending on the extent of this pocket, it may qualify as an old growth stand.

Other than one road built into the Reserve from the east, the area has no issues in regards to old roads for timber management purposes.

Timber Management Issues

- Management of the plantations needs to be planned, though there is little to do silviculturally over the next 15 years.

f. Administrative Concerns

Public Use and Management Roads, Gates and Road Control

The access road into the property is from the West Kingfield Road, its primarily purpose being a timber management road under the previous landowner. Efforts will need to be made to determine the drive-to end point of this road. The road currently does not meet Bureau standards for public vehicular use.

Fire Control

NEED TO BE COMPLETED

Management Issues

- Determine the end point of the current public use road.

C. Chain of Ponds

1. Character of the Landbase

Most of which comprises the Chain of Ponds Unit was acquired from the Brown Company in 1978, and was part of larger statewide land trade that included this 1,041-acre parcel in Chain of Ponds Township. An additional acquisition of 100 acres, along with a subsequent trade of 22 acres, took place in 1985 and 1986, bringing the total acres to 1,119.

The parcel consists mostly of the eastern and northern shoreline of the linear, interconnected series of ponds, including from northwest to southeast Round, Natanis, Long, Bag, and Lower Ponds. The basins form numerous coves and small wetlands, which then empty into the North Branch of the Dead River south of the Unit. Inland Fisheries and Wildlife owns and maintains a dam at Lower Pond at the outlet of the river which functions to maintain the trout and salmon fishery habitat within the chain. The dam was constructed in 1991.

Upland portions of the Unit include a field and forest complex known as Upper Farm, located mostly east of Route 27. Management of the fields has been directed towards maintaining its openness and value for wildlife habitat. The upland area north of Natanis and Round Ponds is a mix of forest, wetland, and forested wetland, and is prone to flooding from nearby beaver activity. This portion of the Unit is also of historic interest relative to the Arnold Trail.

2 Resources and Management Issues

a. Natural and Geological Resources

Geology and Soils

Chain of Ponds is underlain by acidic granite, most of which was deposited during the Devonian period, 354 to 417 million years ago. These igneous intrusions formed during one of the three major mountain building events in New England. As plates collided, magma welled up and cooled slowly beneath the earth's surface. After millennia of erosion, the rock that was once buried beneath hundreds of feet of bedrock is now at the earth's surface.

The north end of Chain of Ponds is underlain by glacial outwash deposits (such as glacial deltas). Along the east side of the ponds some esker deposits are found. In other areas – including most of the unit – till is the dominant glacial deposit. The soils on Chain of Ponds have not been mapped.

Hydrology and Water Quality

The lake covers 700 acres and drains 64.5 square miles. The maximum depth is 106 feet, while the average depth is 24 feet.

Wetlands
The Chain of Ponds unit has 132 acres of wetlands, only 20 of which are forested. Much of the wetlands consist of shrub-lined tributaries to the ponds. The unit also has 180 acres of wading bird habitat, most of which is concentrated around Round Pond and its tributaries.

Natural Communities
There are no exemplary natural communities documented from the Chain of Ponds unit, though the area does contain a diverse collection of wetlands and uplands in good condition.

The western edge of Natanis Pond is characterized by steep slopes with several rocky outcrops covered with rock polypody (*Polypodium* sp.). A Spruce-Northern Hardwoods forest dominates these steep slopes down to the pond edge. The understory is open with hobblebush (*Viburnum lantanoides*), spinulose wood fern (*Dryopteris carthusiana*), and other common forest herbs including painted trillium (*Trillium undulatum*), common wood-sorrel (*Oxalis montana*), bunchberry (*Cornus canadensis*), and bluebead lily (*Clintonia borealis*). Canopy species include white cedar (*Thuja occidentalis*), red spruce (*Picea rubens*), yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*), and hemlock (*Tsuga canadensis*), with spruce as the most abundant tree. Tree ages include a 133 year old cedar, a 77 year old spruce, and a 130 year old yellow birch.

A small Mixed Graminoid – Shrub Marsh is found along the northwestern edge of the unit. This is characterized by several graminoid species (including species of *Scirpus*, *Carex*, *Eleocharis*, *Glyceria*, and *Calamagrostis canadensis*). Black bulrush (*Scirpus atrovirens*) and inflated sedge (*Carex vesicaria*) are dominant. Old beaver dams are evident here (the marsh appears to be an abandoned impoundment), but no recent activity was noted. Species diversity is very high in this area.

The northern end of Round Pond is characterized by a Sweet Gale-Mixed Shrub Fen. This small open fen is dominated by sweet gale (*Myrica gale*) and speckled alder (*Alnus incana*). Meadowsweet (*Spiraea alba*) and star sedge (*Carex echinata*) are frequently encountered. Slender sedge (*Carex lasiocarpa*) and marsh-potentilla (*Comarum palustre*) are scattered throughout the community.

A Spruce-Larch Wooded Bog is found on the eastern edge of the fen at the northern edge of the pond. This is characterized by black spruce (*Picea mariana*) up to 30’ and an understory of sheep laurel (*Kalmia angustifolia*), leatherleaf (*Chamaedaphne calyculata*), three-seeded sedge (*Carex trisperma*), and Labrador tea (*Rhododendron groenlandicum*) with hummocks of sphagnum.

Natural Resource Management Issues

- Potential impacts to the lake environment due to the campground’s proximity to the shoreline should be monitored.
- Invasive aquatic species are a concern from use of the boat launches.

b. Historic and Cultural Resources

Arnold Trail Historic District
The ponds within the Unit provided the route for the Arnold Expedition, which ran into particular hardship when it headed northward through the beaver bogs along Horseshoe Stream. At this point, the expedition became separated. Although many of the Expedition's provisions and possessions had become lost prior to this event, it is possible that the entire area north of Natanis and Round Ponds may contain some artifacts.

The campground may also be a likely location for interpretive displays describing the exploits of the Expedition in this area and northward to Quebec.

Historic-Cultural Management Issues

- Any management in the northern end of the Unit should take into consideration the historic significance of the Arnold Trail.
- Explore opportunities to provide interpretive resources for this portion of the Arnold Trail.

c. Fisheries and Wildlife Resources

The five interconnected ponds contained within the narrow valley that comprises the Unit are the primary natural features. The ponds all have suitable coldwater game fish habitat with Natanis Pond having the deepest water. The Maine Department of Inland Fisheries and Wildlife has stocked lake trout in the ponds to supplement a slow growing salmon population. Brook trout and salmon populations maintain themselves by natural spawning in tributaries to the ponds.

There have been reports of low numbers of deer wintering along Horseshoe Stream and north of Round Pond but this activity has not been verified by ground surveys.

The fields associated with an abandoned farm (Upper Farm) adjacent to the east side of Route 27 have been mowed to maintain the open habitat, in what is otherwise a heavily forested area. Scattered apple trees are found along the old foundation and at the edges of the field. The alders along Upper Farm Brook south of the field have been managed for woodcock by clearing five 30-foot wide strips perpendicular to the brook to rejuvenate the decadent alder. The uplands away from the ponds and Route 27 are forested, but steep and narrow in most places.

Both active and abandoned beaver impoundments have been observed on the Unit, many of which have been created and abandoned over time, resulting in the mosaic of habitats along the stream course.

- The old fields and apple trees are in need of continuous management to maintain their habitat attributes.
- The Horseshoe Stream area holds good potential as a deer wintering area, and will require further monitoring and evaluation regarding its future suitability.

d. Recreation and Visual Resources

Facilities and Opportunities

Recreational use of this area is mostly in conjunction with the ponds and surrounding viewshed. The nearby hills and high ground provide little opportunity, however, for hiking to scenic overlooks. Natanis Point Wilderness Campground, a commercial lease on the north end of Natanis Pond, provides for much of the recreational use of the area. Boating and fishing on the interconnected ponds are popular activities. Access between the ponds by watercraft can be difficult when water levels are low. However, reconstruction of the Lower Pond dam in 1991 has helped to maintain more navigable water levels throughout the chain. Improvements to boat launching are ongoing. The formally-designated Natanis Pond boat site on Route 27 no longer became useable after road improvements to the state highway were completed by the Maine Department of Transportation in 2004. The Bureau, with the assistance of MDOT, is in the process of relocating the designated area to the campground, where informal boat launching (for a fee) has been taking place for a number of years. A steep, graveled access point also exists on Lower Pond, which is in the process of being replaced by a trailerable site. Access to the two middle ponds within the chain is also under discussion.

Ice fishing is a popular activity on the ponds, with a parking area having been recently constructed at the campground entrance along Route 27.

Primitive camping is available at several locations on the ponds. Two campsites with toilet facilities are found off the old road that connects Bag and Lower Ponds, near the informal boat launch site. There are three other sites within the Upper Farm area, where toilet facilities are also available. These sites, however, are in need of upgrading.

There has been discussion over the years of a motorized, international multi-use trail from Stratton to the U.S./Canadian customs gate in Coburn Gore. More recent efforts have been in combination with other efforts to establish an ATV trail system on private lands, that would include Natanis Point Wilderness Campground. A number of visitors come to the campground to take advantage of these ATV trail opportunities. At present, the international trail system has been designated, but is only authorized for snowmobile use at this time – mostly because landowner permission for use of ATV's on the Canadian side has not been secured. A spur from the ATV trail to the campground is maintained specifically for ATV's, and provides access from the campground to Stratton

Visual Considerations

Most of the land surrounding the ponds is steep and hilly with considerable slopes visible from the water. This does not impose special concerns relative to timber

management, as most of the terrain is inoperable. RV's and other camping setups along the shoreline of Natanis Pond are easily seen from Route 27 and from the Pond, although the campground lessee has worked to make this less visible in recent years.

Recreation/visual Management Issues

- Providing adequate boat launching continues to be an area of concern.
- Areas authorized for camping require further redesign and construction.

e. Timber and Renewable Resources

The terrain throughout the Unit is mostly steep, with timber management greatly constrained both by slope and proximity to water, public highway, and recreational use. Only about 240 acres, less than 25% of the forest area, is considered regulated, and is located in two separate areas. The first is a strip in the Upper Farm area east of Route 27, with some located behind the fields, and another accessed by a gravel road that runs through the property. This parcel contains mainly well-stocked northern hardwoods, uncut for the past 30+ years, but with an extensive harvest history before that. The second area lies behind and west of Natanis Point Wilderness Campground, on either side of Horseshoe Stream and associated wetlands. This land is not quite as steep as the first parcel and is mainly mixedwood, northern hardwood/spruce-fir, with a similar cutting history. Any timber management would be geared towards retaining the existing forest types in most cases, while seeking to grow high quality stems with respect to visual concerns.

Timber Management Issues

- Due to terrain limitations, visual considerations, and the modest acreage on this unit, any harvests will most likely be planned in concert with harvest plans on the abutting landowners.

f. Administrative Concerns

Leases and Agreements

Natanis Point Wilderness Campground has a 7-acre commercial lease with the Bureau, which includes approximately 1,500' of frontage along the northwestern shoreline of Natanis Pond. The current lease is a continuation of an agreement begun with the Brown Company prior to state ownership in 1978.

There are five residential camplot leases on the unit, all of which were in place prior to acquisition of the property in 1978. A one-acre lease is located south of the Upper Farm area along the east side of Route 27, and has road access; three other one-acre leases are located along the eastern shoreline between Long and Bag ponds, and have road access; a fifth lease includes a one half-acre lot on Long Pond, and is water accessible only. These leases have been established on a five-year renewable basis, are for residential and seasonal use only, and contain conditions that limit improvements to both structures and lots.

Public Use and Management Roads, Gates, and Road Controls

The campground area contains the only public access road into the Unit, although visitors are required to check-in prior to its use. The bridge over the outlet between Round and Natanis Pond was reconstructed in the 1990's, and replaced in 2005 with assistance from the Department of Transportation. The bridge replacement is part of a two-phase project that will include replacing the old boat launching facility on Route 27 with a new one within the campground.

Fire Control

NEED TO BE COMPLETED

D. Other Public Lots

Wyman Township-Carrabassett Valley Lot

In 1999, the Bureau acquired from Huber Resources Corp. a 2,075-acre parcel in Wyman Twp. along Route 27 southwest of the Bigelow Preserve. An additional 397 acres abutting this property in the Town of Carrabassett Valley was also acquired. The acquisition provided additional protection and access to the Appalachian Trail, along with providing enhancements to the snowmobile loop trail around the Bigelow Mountain. The property is managed primarily to provide opportunities to the Preserve.

Coplin Plantation

The two Coplin Plantation public lots include the 400-acre West or Deeryard lot, which abuts the plantation boundary to the west, just west of the south branch of the Dead River. The lot provides excellent deer wintering habitat and is managed for this use in cooperation with the Department of Inland Fisheries and Wildlife. A second parcel, the 500-acre Center lot, is primarily managed for timber, and is entirely surrounded by industrial forestland. An additional 115 acres along Curry Street north of Route 27 provides access to the recently relocated and reconstructed Range Trail trailhead.

Natural and Geological Resources

1) West Lot (Deeryard Lot)

The area is underlain by mafic (igneous, chiefly iron-magnesium) and intermediate granite bedrock; the surficial geology includes till and ice contact glaciofluvial deposits. Soils are very stony, well to poorly drained, and formed in dense till. The parcel is rich in wetlands, including 140 acres of forested wetlands and 29 acres of non-forested wetlands. IFW has used the parcel as a study site to research the influence of timber harvests on deer habitat preferences. The southern part of the parcel was harvested in 1985 in response to a spruce budworm outbreak. This area currently has an overstory of poplar with a softwood understory. The northern part of the parcel is characterized as forested wetland and lowland areas punctuated by forested knolls.

2) Center Lot

The Center lot is surrounded by industrial timberlands that are regenerating after recent harvests. Most of the parcel shows evidence of past cuts, and mixedwoods and softwoods in the southwestern portion were strip cut many years ago. A portion of the parcel north of the road is underlain by mafic (see above) and intermediate granite, while south of the road is underlain by acidic sediments. The entire parcel is also underlain by glacial till. Very stony, deep soils that formed in glacial till characterize the parcel. Towards the eastern and central parts of the parcel, relatively mature woods are encountered. A Beech-Birch-Maple Forest is found throughout the northeastern quadrant of the parcel. Two different age classes are evident here suggesting a selective harvest at least 75 years ago (based on tree size and age). Several mature trees are present including a 36 inch diameter sugar maple and a 29 inch diameter yellow birch. Several other birch, maples, and basswoods were aged to over 130 years. Several beech trees are infected with *Nectria*. The late successional index was not applied here, but many parts of this parcel may have old growth components. The understory is abundant with sugar maple and beech regeneration as well as hobblebush (*Viburnum lantanoides*) and oak fern (*Gymnocarpium dryopteris*). Other ferns present include long beech fern (*Phegopteris conectilis*), lady fern (*Athyrium filix-femina*), sensitive fern (*Onoclea sensibilis*), New York fern (*Thelypteris noveboracensis*), evergreen wood fern (*Dryopteris intermedia*), interrupted fern (*Osmunda claytoniana*), and ostrich fern (*Matteucia struthiopteris*). Several small, seepy drainages flow through the forest. Plants along the streams include rough sedge (*Carex scabrata*), long beech fern (*Phegopteris conectilis*), American speedwell (*Veronica americana*), and water carpet (*Chrysosplenium americanum*). Species diversity is high throughout the area. A

small wetland is located in the north-central portion of the parcel, on the south side of the logging road. This wooded swamp is characterized by northern white cedar and three-seeded sedge (*Carex trisperma*) with red baneberry (*Actea rubra*) occasional along the edge.

Fisheries and Wildlife Resources

1) Center Lot

This lot is composed mostly of hardwood species with some older stems despite a history of multiple harvests. The lot has often been described as an “island” as it is surrounded entirely by commercial forestland. A mature beech-birch-maple stand in the northeast corner is of particular note, where remnants of old growth forest are found in the stand. Moose, deer, bear, coyote and red fox are common on the lot. Several small streams bisect the lot, but it is not known if these streams support viable fish populations.

2) West Lot (Deeryard Lot)

Nearly the entire lot is zoned as a Deer Wintering Area (DWA), which is part of the larger yard along the Dead River. Extensive measurements of deer cover and use took place here during the earlier harvest and for a number of years afterward, documenting a very high number of deer per square mile wintering in the yard. The DWA was the focus of a long-term study of the relationship of softwood cover to deer movement and use by IFW from 1984 to 1991. Results so far have been inconclusive because the data could not be analyzed statistically.

Past harvesting has focused on managing the softwood component for wintering deer. A 2004 harvest released patches of advanced softwood regeneration from large overstory hardwoods to promote this development.

Several small wetlands occur on the lot; one has been in use by a nesting pair of Canada geese for about 10 years. Woodpeckers are abundant due to the copious supply of dead and dying balsam fir and the abundance of over mature aspen. Beaver occasionally dam the streams until their preferred food is gone. A small dense white cedar stand is also found on the north line of the lot.

Wildlife Management Issues

- Continue to monitor and evaluate use and ongoing studies related to the Deer Wintering area on the West Lot.

Timber and Renewable Resources

1) Center Lot

This lot has been managed mostly for timber, with good soils and mostly well-stocked stands similar to those found at Bigelow. Timber types are 15% softwood, 25% mixedwood, 60% hardwood. The mixedwood type is an exception to the "well stocked". The spruce/fir/aspen stand had narrow stripcuts made as part of the 1984-85 harvest, which also treated (selection harvest) about 1/3 the hardwood acres while thinning much of the softwood type. The mixedwood area suffered significant windthrow post-harvest, especially on the south lot line adjacent to a large clearcut made by the abutter. This stand also had rather poor drainage, as does some of the softwood. The hardwood stands are mostly on well-drained fertile ground. This lot offers the opportunity, especially in its hardwood stands, to manage late successional forest for high quality timber. It has recently been re-prescribed, and is now being harvested.

2) West Lot (Deeryard Lot)

Most of the nonforest and unregulated forest is poorly drained bog land. Except for its lack of significant pine, the forest here resembles that on Dead River Peninsula. Forest types are 50% softwood, 35% mixedwood, and 15% hardwood. Leading softwood species are spruce, fir, and cedar. The 1986-1988 harvest targeted fir and some mature spruce, as well as aspen and red maple - the major hardwood species found on this lot. In early 2005 a few hundred cords of mostly (90%) aspen were harvested to help release the softwood understory. Management of this lot has been pointed toward maintaining and enhancing its winter value for deer.

Dead River/Spring Lake Townships

The 5,151-acre Dead River/Spring Lake lot includes 4,191 acres on the peninsula in Dead River Twp., acquired from Diamond International Corporation in 1978 as part of a larger land trade, and an original 960-acre public lot in Spring Lake Twp. (T3 R4 BKP WKR). The property abuts the shoreline in most of the northeast portion of Flagstaff Lake. Except for the steep land along and near Long Falls on the Spring Lake parcel, the terrain on this tract is flat to gently sloping, in contrast to almost all the rest of the Plan area. It has been used primarily for timber growth, although there are some recreational features of importance, especially the Big Eddy camping area along the Dead River below Long Falls Dam. There is extensive, undeveloped shoreline on the lake, and a large waterfowl impoundment on Blanchard Brook flowage, developed in cooperation with the Department of Inland Fisheries and Wildlife and International Paper. The area is also popular for hunting.

*Natural and Geological Resource*s

The Dead River Peninsula has several wetlands, though none are considered exemplary. A Northern White Cedar Swamp in the center of the peninsula is surrounded by recently harvested woods. In addition to the northern white cedar (*Thuja occidentalis*), there are areas of dense balsam fir (*Abies balsamea*) and red maple (*Acer rubrum*) regeneration, but neither of these species is in the canopy. There are also small openings in the canopy that are dominated by a dense growth of mountain holly (*Nemopanthus mucronata*). Common herb layer members included three-seeded sedge (*Carex trisperma*), cinnamon fern (*Osmunda cinnamomea*), creeping snowberry (*Gaultheria hispidula*), and twinflower (*Linnea borealis*). A wetlands drainage cuts through the north-central portion of the peninsula and drains into Flagstaff Lake at a cove on the east side of the peninsula. This beaver controlled area consists of Alder Shrub Thickets alternating with Mixed Graminoid Shrub Marshes. A Spruce – Fir – Cinnamon Fern Forest was documented on the north side of the drainage, while a Leatherleaf Boggy Fen is south of the drainage. Soils on the Dead River-Spring Lake Unit are glacial till or glaciofluvial deposits, and tend to be very deep, ranging from somewhat poorly to excessively well drained. This area is also bordered by recent harvests on private lands.

Fisheries and Wildlife Resources

The Dead River peninsula is dominated by early successional tree species due to sandy soils and a history of fire. These forest types have lent themselves to focused management for ruffed grouse and woodcock. Timber harvests in 1990's created a patchwork of small openings beneficial to grouse. The Bureau has also conducted grouse drumming counts during the spring breeding season to determine populations.

An artificial impoundment on Blanchard Brook was created in 1985 by installing a water control device at the culvert on the Flagstaff Road. Approximately 20 acres were flooded with one to two feet of water, creating ideal waterfowl rearing habitat. Waterfowl nest boxes placed within the flowage have helped produce consistently high occurrences of hooded merganser and common goldeneye broods, making this area

one of the more successful in the state. The surrounding wetland is frequently used by moose, great blue heron, osprey, and beaver.

The adjacent Spring Lake lot has a small but mapped LURC Deer Wintering Area. Timber harvesting on this lot has focused on improving the softwood shelter for deer. Wood turtles (species of special concern) have been found in the Dead River and females occasionally utilize the gravel road bank as nesting areas.

Recreation and Visual Resources

Most of the recreational use of this unit is related to use of the Big Eddy camping area on the Spring Lake parcel. Located about a one half mile downstream from Long Falls Dam, and just off the County Road (Long Falls Dam Road) the site also provides fishing access to the Dead River. The Big Eddy site is essentially an open gravel pit with no designated camping spots, although it can accommodate 12-15 parties comfortably. However, the site frequently receives much heavier use. The Bureau has maintained contracts with the County Sheriff to provide law enforcement services at the site, particularly on holiday weekends.

A portage trail, now part of the Northern Forest Canoe Trail, is maintained by Florida Power and Light as part of the hydro license agreement.

Florida Power and Light also manages a day use, picnic, and primitive boat launching site near Long Falls Dam, also in connection with the hydro license.

Recreation Management Issues

- Access needed improvements to the Big Eddy campsite area.
- Consider options for locating a portion of the Western Mountains Foundation ski trail on the unit, should it be proposed.

Timber and Renewable Resources

Only 6% of the forest in the Dead River/Spring Lake Unit is unregulated (not suitable for timber harvesting). While soils here are generally not as fertile as those on the Bigelow Preserve, they are still adequate for growing softwoods, and in some places fertile enough to produce quality hardwoods. Inventory volumes on the parcel are considerably less than those on the Bigelow Preserve, averaging about 17 cords per acre. Since the budworm salvage cuts of the mid-1980s, over 38,000 cords have come from the Dead River/Spring Lake lot, a rate that slightly exceeds the sustainable harvest level for the tract. This occurred because spruce budworm salvage resulted in nearly 200 acres of clearcuts in 1985, the second largest clearcut ever managed by THE BUREAU. The broad scale harvests of the early 1990s took considerable mature aspen, and removed low-grade hardwood left by pre-THE BUREAU harvests of the 1960s and 1970s. Over 70% of the total harvest came during the period from 1992 to 1995. Except for the grouse management patches with their 10-year interval, these stands were prescribed for re-entry in 20 years, and by 2012 the long-term harvest rate will have decreased to less than the Sustainable Harvest Level.

Stand Type Characteristics (regulated acres only):
Softwood covers 27% of the unit, 50% of that being spruce, 19% fir, and 9% each pine (almost all white pine) and red maple. The recent harvesting captured most of the low quality or high risk stems, leaving the better trees with room to grow while establishing desirable regeneration with an increased proportion of pine. Management has been (and should continue to work) to increase the pine component while maintaining spruce in at least its present abundance. Near-future harvests will likely target trees declining in health - such as maturing fir - providing more room for regeneration.

Mixedwood is by far the most common type. The Sackett & Brake (S&B) timber typing put it at 71% of the regulated acres, but the prescriptions identified only 61%. Though the S&B work was post-cut and the prescription was (of course) pre-cut, observations and harvest volumes (57% hardwood from 1992 on) support the prescription percentages. Within the type, spruce makes up one third of the volume, with red maple at 21%, fir %14, and aspen 9%. Pine, cedar, and white birch are 7,6, and 5% respectively. Although a few areas are fertile enough to grow quality hardwoods (and show it by having healthy yellow birch and hemlock), most of this type should be managed to encourage softwoods, especially spruce and pine. Given the preponderance of softwoods in the understory, the softwood/mixedwood type percentages might be switched 20-30 years from now. Two stands that were typed as mixedwood deserve special mention: The combined 150-acre area was budworm-damaged softwood, clearcut in 1985, with 32 acres planted in 1985 to white and red pine, and another 54 acres to all white pine in 1986. About 20 acres of plantation received release treatment (some mechanical, most herbicide) in 1988-1990 with varying effectiveness, though the largest trees are 40'+ tall and 9" in diameter (dbh). The rest of the planted area has enough pine to be an important part of the stand, but some areas have become aspen type.

The hardwood type on the unit is almost all aspen, clearing-for-lake fire origin near the shoreline, and 20-30 years older near the north boundary. Patchcuts of 1-3 acres have been made throughout this type, mostly occurring from 1992-1994, some on the far south in 1998, and a second series in the north in 2002. Non-aspen hardwood stands occur in scattered pockets, with most heavy to red maple. Only one stand with "normal" northern hardwoods (beech, yellow birch, and/or sugar maple) is found on the Spring Lake lot. Management should probably retain all present hardwood type but not try to increase it, given the soils present. Most aspen should continue to regenerate if small patchcuts, timed to benefit grouse, are used. Other hardwood stands would benefit from a reduction of the red maple component while promoting sugar maple and yellow birch. The very scarce beech should be retained unless it is high risk.

Timber Management Issues

- Current timber stocking is below average for the Bureau, but has overall good quality and potential.
- The Picked Chicken Hill Road has not been formally designated for public use, although it has been maintained for that purpose. The 2002 aspen harvest managed patches to the roadside (a departure from policy regarding the management of public roads), in part due to the frequent blowdowns

blocking the road. Future patch cuts may also be required near or directly on the road for the above reasons.

Leases and Agreements

The Long Falls Dam lease, originally with Central Maine Power in 1940 and assigned to Florida Power and Light in the 1990's, is located on Flagstaff Lake at the outlet of the Dead River on the Spring Lake public lot. The lease, issued by the State of Maine as provided in Private and Special Law in 1923 (and amended in 1927), allowed for the construction of the dam and resulting impoundment on Flagstaff Lake. The lease also permits administrative use of the remaining upland area of the Spring Lake public lot where it is necessary to the ongoing management of the dam. This provision does not interfere with timber management or the recreational use of the property.

A lease for a one third-acre parcel along the Long Falls Dam Road on the Spring Lake parcel is in place with Nestle Waters North America, Inc. The lease provides additional space for an off-road loading area in conjunction with spring water extraction activities taking place on adjacent private lands.

Highland Plantation

Four of the five Highland Plantation lots are included in this Plan. A fifth lot to the east will be considered in a separate regional plan that addresses properties within the Kennebec valley area. Though none of the four lots lie on this township's mountainous northern end, all have considerable steep ground. Soils are generally well to moderately well drained, and fertile except on the steepest land. The forest is well stocked with quality stems, with volumes and competition similar to those found on Bigelow Preserve. The lots are described in three sections: the two-parcel Double lot (300 acres) which connect at their north/south corners, lies in the southwest part of the plantation; the Southeast or Oak lot (125 acres) which is smallest of the parcels, and is located on the southeastern portion of the plantation. Sandy Stream separates all but 10 acres in the northwest corner from easy access, though the larger portion is accessible from the uphill side; and the West or Long Falls Dam lot (325 acres), named because of the one mile of county road located on the property. The West lot is the most diverse of the four lots discussed in this section.

Natural and Geological Resources

1) Double Lot
The parcel is underlain by acidic granite bedrock and till and glacio-marine surficial deposits. Soils on the parcel tend to be well to somewhat excessively drained.

2) Southeast Lot
The area is underlain by acidic granite and glacial till, and soils on the parcel formed in loamy glacial till and tend to be well to somewhat excessively drained. Sandy Stream runs through the eastern half of the property, and a series of hardwood and hemlock (*Tsuga canadensis*) dominated small terraces lead down to the water. A small (three to four acre) Hardwood River Terrace Forest occurs on the east side of Sandy Stream. This area was cut more recently (15 to 20 years ago) and is characterized by pole-sized red oak (40%), and a remainder of sugar maple (20%), hemlock (20%) with scattered cedar, beech, red maple, and white ash. Further up the slope, the tree layer is dominated by hemlock with beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*), and red oak (*Quercus rubra*) also present. Basal area is 170 ft^2/acre. The shrub layer is sparse, consisting of small amounts of striped maple (*Acer pensylvanicum*) and hobblebush (*Viburnum lantanoides*). The herb layer is patchy, dense in some places and sparse in others. This layer consists of a mix of common forest species, such as Canada mayflower (*Maianthemum canadense*), partridgeberry (*Mitchella repens*), star flower (*Trientalis borealis*), and sessile-leaved bellwort (*Uvularia sessilifolia*), with no one species dominating. The soil is acidic (pH of 3.5) and rocky, with occasional small granitic cliffs along the terraces. There are several ravines and seeps on the lower slopes. If the area is harvested in the future, these will need to be flagged and adequately buffered.

3) West Lot
The West lot, due to previous harvesting activities, is dominated by regenerating spruce. Bedrock types on the unit include acidic sedimentary rock, moderately

calcareous sedimentary rock, and mafic and intermediate granite. Glacial till is the dominant surficial deposit. The parcel contains seven acres of non-forested wetlands and seven acres of forested wetlands. The parcel appears to have an even mix of hardwood, softwood, and mixedwood types with hardwood concentrated on the drier slopes and softwood found in ravines and wetter areas.

Fisheries and Wildlife Resources

These lots contain no known endangered or threatened species or other species of concern. They are primarily hardwood forests that have the usual mix of wildlife species found in this area of Maine. The most westerly lot bisected by the Long Falls Dam Rd. has several apple trees that were released and pruned at the time of the most recent harvest by the Bureau. Sandy Stream in the Southeast lot supports a limited brook trout fishery.

Timber and Renewable Resources

1) Double Lot

Both lots are occupied mainly by good quality northern hardwood stands, and all but a few steep and rocky acres at the north end of the larger lot are regulated forest. Hardwood type covers 88% of the lot, with mixedwood at 5%, and softwood at 7%. Over half of the total acres on this lot have sugar maple as the lead species with beech being next. Some hardwood stands are beech dominant. The one mixedwood area has large hemlock along with spruce and hardwoods within a riparian buffer. Half the softwood acres are hemlock dominated within a riparian buffer; the other is mostly spruce on relatively steep but operable land. These lots were selection harvested in 1987-90. A trespass cut of several acres occurred at the south edge of the smaller lot in 2003.

2) Southeast Lot

This tract holds high volumes of late successional species, and has unofficially been excluded from harvest consideration, in part as a small but intact LS example. Except for some possible cuts 30+ years ago (before the bridge went out) right next to the old road along the south line, this lot appears uncut for at least 50 years, though it had some significant cutting at some time before that. Forest types are roughly 60% mixedwood, 35% hardwood, with the small component of softwood being hemlock within a steep ravine. The key species are sugar maple, hemlock, and beech, though the beech component has been halved over the past 20 years, probably due to the beech bark syndrome. There are also 3-4 acres in the southeast corner where 15-25 inch diameter red oak is the primary species. Oak is otherwise scattered throughout much of the lot.

3) West Lot

Twenty-two acres on the parcel are unregulated due to steepness and the presence of a 7-acre semi-open swamp. Forest types are roughly 34% softwood, 25% mixedwood, and 41% hardwood. Sugar maple is by far the most important hardwood species, followed by beech and yellow birch. In the softwoods, the fir and spruce components had been about equal prior to harvesting from 1988 to 1991, which took considerably more of the fir. However, spruce still holds a strong second position and is relatively

healthy, with most of the older high-risk trees removed. The lot is considered to be mostly late successional forest of high quality.

Flagstaff Township

1) Myers Lodge

This 290-acre parcel is part of a larger original public lot located on the west side of Flagstaff Lake; the remainder being at or below the high water elevation acquired by CMP when the lake was created. Access to the parcel is located on Route 27 three miles north of the Stratton, along what was the old access road to Flagstaff Village.

Natural and Geological Resources

The Myers Lodge parcel is almost entirely flat, with small differences in elevation resulting in major changes in vegetation. The 60 acres of open bog is only a couple feet lower than the nearby forest stands of spruce and pine on well-drained sand, with spruce and cedar on wet sites in between. There is also some fire origin forest and some, near the campsites, where many trees have the limby appearance typical of old farm areas.

Recreation and Visual Resources

The parcel contains five designated drive-to campsites and a swim beach. Three campsites are located on the north side of the access road several hundred yards from the shoreline; the other two are located near the beach area. Most of these sites see heavy use throughout the camping season; portable toilets have been placed in this area as a temporary solution to ongoing sanitation issues. A proliferation of camping also occurs during lake drawdowns when considerable beach area is exposed. The sandy shoreline along this parcel is also used as a beachhead for both day and overnight trips to destinations across the river on the Bigelow Preserve.

There are remarkable views of the Bigelow Range from the property. The shoreline is also highly visible and attractive from the lake.

Timber and Renewable Resources

Stand composition here resembles that on Dead River Peninsula, though the stocking on average is significantly higher on the drier sites. This lot also holds a large component of pine (mostly white with some red), nearly all of which is good quality.

The 1985 prescription called for harvesting on nearly 200 acres, but the actual harvest in the summer of 1987 treated only 71 acres, concentrating on thinning, while not conducting patch cuts in the spruce-cedar and spruce-fir stands as prescribed. It is probable that the fir, the target species on the un-entered sites, had already died by the time of the harvest.

2) Northern Shoreline

Acquired from Plum Creek in 1999, this property consists of 1,316 acres abutting the northern shoreline of Flagstaff Lake in Flagstaff Township. There is a discrepancy in determining the precise acreage because the property is described as a 500-foot wide strip immediately inland from the high water mark of the lake. The lower limit of the property is at 1146’ elevation; however, Florida Power and Light (FP&L) generally owns to the 1150’ contour around the lake. In addition, there are places where the FP&L

ownership exceeds the 500 foot-wide area conveyed by Plum Creek, making the State ownership discontinuous.

Timber and Renewable Resources
The forest is mostly mixedwood and softwood, and resembles Dead River Peninsula in species composition, but with greater volumes because it has not been harvested in several decades. The parcel is entirely unregulated forest, due mainly to the difficulty in getting there, although some timber management might be possible in concert with the abutting owner's harvest plans.

3) Flagstaff Island
This 220-acre parcel is located in Flagstaff Lake north of the Preserve, at the western end of Flagstaff Island.

Natural and Geological Resources
The island parcel is predominantly wooded Spruce – Northern Hardwood Forest that transitions to a White Pine – Mixed Conifer Forest further inland. This mature, upland forest is interrupted by significant patches of blowdowns, resulting from natural disturbance events in the last ten years. The forest has 60% canopy cover and is dominated by red maple (*Acer rubrum*), red spruce (*Picea rubens*), paper birch (*Betula papyrifera*), and white pine (*Pinus strobus*), with dense pine and fir (*Abies balsamea*) regeneration. Two large red spruce trees were determined to be 115 and 120 years old, with 14 inch and 17-inch diameters, respectively. The canopy is approximately 65 feet high, with the diameters for all species ranging from a 12-inch paper birch to a 31-inch white pine in the supercanopy. The average basal area of the non-blowdown portions of this mixed-wood stand is 110 ft^2/acre, compared to the dramatically lower basal area of 60 ft^2/acre in blowdown areas.

The central and eastern portion of the island is a roughly even-aged exemplary Spruce – Fir – Broom-moss Forest, which occasionally grades into patches of White Pine – Mixed Conifer Forest. This mature, closed canopy forest is spruce dominated with scattered white pine, paper birch, and red maple. Large aggregations of *Lobaria pulmonaria* lichen (a species associated with late successional forests) are prevalent on many of the red maples. Most spruce is in the 12 to 16 inch diameter range, while white pine ranges from 16 to 25 inches in diameter. The overall basal area ranges from 140 to 170 ft^2/acre. Two large spruces were found to be 155 and 125 years old, and a white pine was aged at 125 years old. The most common understory species include regenerating fir, wild sarsaparilla (*Aralia nudicaulis*), Canada mayflower (*Cornus canadensis*), evergreen wood fern (*Dryopteris intermedia*), and bracken fern (*Pteridium aquilinum*).

Fisheries and Wildlife Resources
There is a mapped bald eagle nest on the island.

- The heavy use and proliferation of camping on the Myers Lodge parcel, along with its popularity for boating and day use, has created negative impacts to both the physical and social environment of the use area. Sanitation issues need to be further addressed.
- The boundary line along the northern shoreline needs to be established.

King and Bartlett Township

The 60-acre King and Bartlett parcel is the remainder of an original public lot and is the smallest parcel within the Flagstaff region. It lies several miles behind a tight gate and is surrounded by a large area of industrial forest ownership. The location of the lot was recently confirmed.

Natural and Geological Resources

The parcel is underlain by acidic sedimentary bedrock and glacial till. Soils were formed in dense till and tend to be shallow and excessively drained.

Timber and Renewable Resources

The lot holds reasonable stocking on unremarkable timberland; any plans for management would logically be coordinated with activities on abutting private lands.

Redington Township

The 1,000-acre Redington parcel is an original public lot located on the southeast corner of the township, two miles west of Mt. Abraham. Approximately 6,000 feet of the Appalachian Trail runs east/west through the center of the parcel.

Natural and Geological Resources

The parcel is underlain by acidic granite and glacial till. Soils are very stony and somewhat poorly to somewhat excessively well drained.

Timber and Renewable Resources

The parcel is dominated by mixedwood stands with hardwoods on the lower southwesterly slopes and softwood in the northeast and central portions of the parcel. In 2001, timber harvests were conducted during winter months north and south of the AT, with some large fir found in the higher elevations. Much of this parcel is strongly sloping, although most of it is operable timberland. The lot's unregulated forest is either related to the 200 foot wide AT crossing just south of the lot's midpoint, or the 46 acres (P-MA) between the 2,700 (P-MA), and 3,000 foot elevations. The lowest point on the lot, at the south line, is about 2,000 feet in elevation. This relatively high elevation has a major effect on the species and character of the timber. Trees tend to be short-bodied throughout most of the lot, their "carrot (or lollypop on birch) character" becoming more pronounced as elevation is gained, especially on fir. The high elevation birch often has one nice straight log, topped by a spray of branches unmerchantible even for pulp. The lot's species diversity is relatively low. Two northern hardwood stands on the south (and lower elevation) half of the lot cover 241 acres and are the only acres with enough sugar maple (about 55% of the volume) to be worth noting. The other hardwood stand is 32 acres of white birch and red maple saplings and poles resulting from a 1960's clearcut. None of these stands were entered during the 1998-2001 harvests.

The lot holds only 117 acres of softwoods, nearly half being another sapling-pole stand (spruce-fir about 50-50) from a 1960s clearcut. Most of the other 60 acres, including much of the P-MA, had fir and some spruce cut by THE BUREAU. The softwoods probably still hold more fir than spruce despite fir being targeted during the recent harvest, with much smaller amounts of white and yellow birch present. Over 60% of the lot holds mixedwood forest, and this type is about 25% each fir, yellow birch and spruce, 18% white birch, and the rest red maple. Nearly 2/3 of this type had harvesting in the recent operation, with fir the major species removed – it was 1/3 of the stand pre-cut. The untreated mixedwood type was land, which had been cut more heavily in the 1960s.
Fir, spruce, and the birches within the softwood/mixedwood types are the species best suited for the soils and elevation, with spruce and yellow birch being the more valuable and longer lived species.

Timber/Recreation Management Issues

- Visual considerations are of concern on this parcel due to the presence of the Appalachian Trail that bisects the lot.

Freeman Township

The 112-acre Freeman lot came to the State for nonpayment of taxes, and lies in the northeast part of Freeman Township, on the east side of Freeman Hill adjacent to a town maintained road.

Natural and Geological Resources

The parcel is underlain by acidic sedimentary bedrock and glacial till, and contains four acres of non-forested wetlands. Soils tend to be very deep and well drained with some wet runs. The terrain is gently to moderately sloping.

Fisheries and Wildlife Resources

Outside of a beaver flowage at the southwest corner, little else is known about this lot.

Timber and Renewable Resources

The land is nearly all forest, consisting mostly well-stocked second growth hardwood, typical of the surrounding area. The area was heavily harvested 25-30 years ago. he key species appear to be spruce and sugar maple, with white pine occasionally important. Most acres would benefit from an improvement harvest.

Management Issues

- A forest prescription has never been completed for this lot.

Pierce Pond Easement

The 9,812-acre Pierce Pond property consists of a conservation easement acquired in 1998 on three privately held parcels (S.D.Warren, Maine Wilderness Watershed Trust, Charles Valentine). The objective of this project was to protect the Pierce Pond watershed from development, while continuing to provide for timber management and public use of the area.

Funding for this purchase was provided through the U.S. Forest Service Forest Legacy Program. The Bureau, along with the Maine Wilderness Watershed Trust, has easement monitoring responsibilities.

V. Appendices

A. An Act to Establish a Public Preserve in the Bigelow Mountain Area

Be it enacted by the People of the State of Maine, as follows:

Sec.1. Bigelow Preserve. The Department of Conservation, including the several bureaus and agencies therein, and the Department of Inland Fisheries and Game are hereby authorized and directed to acquire approximately 40.000 acres of land on and around Bigelow Mountain in Franklin and Somerset Counties for a public preserve to be known as the Bigelow Preserve. The Preserve shall include generally all land in Wyman and North One Half Township north of Stratton Brook and Stratton Brook Pond, and all land in Dead River township south and east of Flagstaff Lake. All public lots within or contiguous to this area shall be included within the Bigelow Preserve.

Sec. 2. Administration and Acquisition. The Department of Conservation and Inland Fisheries and Game shall administrate the Preserve. These Departments shall seek and use funds for the acquisitions of land necessary for the Bigelow Preserve from state bond issues and appropriations, federal funds, and other sources now or hereafter available to them. Acquisitions shall be coordinated by the Department of Conservation. Sufficient property rights and interests shall be acquired to accomplish the purposes of this Act.

Sec. 3. Purpose. The purpose of this Act is to set aside land to be retained in its natural state for the use and enjoyment of the public. The preserve shall be managed for outdoor recreation such as hiking, fishing, and hunting, and for timber harvesting. Timber harvesting within the Preserve shall be carried out in a manner approved by the Bureau of Forestry and consistent with the area's scenic beauty and natural features. All motor vehicles, not including vehicles engaged in timber harvesting, shall be restricted to roads designed for their use, except that snowmobiles shall also be allowed on designated trails. Designated roads shall be limited to those easily accessible to automobiles as of the effective date of this Act. No buildings, ski lifts, power transmission facilities or other structures shall be built in the Preserve except for open trail shelters, essential service facilities, temporary structures used in timber harvesting, small signs, and other small structures that are in keeping with the undeveloped character of the Preserve.

Definitions Specific to the Bigelow Act

natural state (section 3. Purpose) - maintenance of the general natural character of the environment of the Preserve by managing the resources to accommodate low intensity dispersed recreation activities, the basic facilities necessary to provide access to these opportunities, (e.g., trailhead parking; boat access to Flagstaff Lake; wal-in, or water access campsites; picnic sites), forest management and wildlife management facilities.

Discussion. The term implies lack of artificiality, pertaining to, in accordance with, or determined by, nature, being or found in its native state, and not artificial, synthetic, processed, acquired by external means, etc. "Natural Area" is a related term.

"... areas of unique natural condition with little developed facilities." (Idaho -1973 State Comprehensive Outdoor Recreation Plan).

"an area.. .often including a prime natural attraction, maintained primarily to preserve it in an undeveloped condition (Vermont, 1073).

"An ecosystem protected from human influence." (Federal Bureau of Outdoor Recreation
1975).

Natural Environment - usually includes varied interesting land forms such as flora and fauna in an attractive natural setting, with uses and development usually limited to hiking
trails, picnicking and primitive camping. (Maryland, 1974 State Comprehensive Outdoor Recreation Plan).

Nature Reserve - a large tract of land retained in its natural state to preserve its scenic features. (Glossary of terms, 1970, prepared by Maine, Vermont, and New Hampshire).

The Bigelow Act petition drive and subsequent passage by referendum expressed a desire to keep and protect the mountain range from proposed development of a destination, downhill skiing resort which would have significantly altered the natural setting of the area.

Recreation in the Preserve should require little permanent physical alteration of the environment and should not encourage the concentration of users in a manner detracting from the essential character of the natural surroundings. Appropriate, dispersed activities could include, but are not limited to: trail hiking, picnicking, snowmobiling, fishing, hunting, cross-country skiing, and primitive camping. Wildlife and timber management should also require little permanent physical alteration of the environment.

Essential Service Facilities (section 3. Purpose) - Basic facilities needed to service a resource area and to control and enhance public use. Location and design of the facility should be consistent with the objective of protecting the overall natural character of the Preserve.

Discussion. Facilities typically provided in State Parks and Public Reserved Lands to facilitate maintenance and to control and serve the public include caretaker quarters for recreation, forestry, or wildlife management; service or storage buildings; a service road system; power lines; sanitary stations or privies; changing areas; gates and entry contact stations; water taps; parking lots; a road system; directional signs; and waste disposal areas. These "essential service facilities" are not necessarily present or desirable everywhere. Temporary structures for timber harvesting are permitted according to the Act. A crew camp for just timber harvesting is considered a temporary

structure. Structures discussed under this section should also be simple, unobtrusive, and complement the undeveloped character of the Preserve.

Other small structures in keeping with the undeveloped character of the Preserve (Section 3. Purpose) - relatively small structures or devices, such as trail signs, registration boxes, trail bridges, tent platforms, fireplaces, low head dams to enhance wildlife habitat, picnic tables, etc., that are necessary for user safety or management of the Preserve.

Discussion. The Bigelow Act states that “No buildings, ski lifts... shall be build in the Preserve except for open trail shelters…small signs, and other small structures that are in keeping with the undeveloped character of the Preserve." The position of this phrase within the text of the Bigelow Preserve Act suggests that the key words are "other small structures" rather than "in keeping with," which implies that items such as registration boxes, fire tool boxes, trail bridges, and trail signs are permitted. Such structures should be simple in design and appearance. (Source: Bigelow Preserve, Policy Issues/Guidelines. Bureau of Parks and Recreation, Department of Conservation, November 1981.)

B. Maps

C. Glossary

"Age Class": the biological age of a stand of timber; in single-aged stands, age classes are generally separated by 10-year intervals.

"ATV Trails": designated trails of varying length with a variety of trail surfaces and grades, designed primarily for the use of all-terrain vehicles.

"All-Terrain Vehicles": motor driven, off-road recreational vehicles capable of cross-country travel on land, snow, ice, marsh, swampland, or other natural terrain. For the purposes of this document an all-terrain vehicle includes a multi-track, multi-wheel or low pressure tire vehicle; a motorcycle or related 2-wheel vehicle; and 3- or 4-wheel or belt-driven vehicles. It does not include an automobile or motor truck; a snowmobile; an airmobile; a construction or logging vehicle used in performance of its common functions; a farm vehicle used for farming purposes; or a vehicle used exclusively for emergency, military, law enforcement, or fire control purposes (Title 12, Chapter 715, Section 7851.2).

"Backcountry Ponds": ponds having no existing road access by two-wheel drive motor vehicles during summer months within ½ mile of the normal high water mark of the body of water with no more than one noncommercial remote camp and its accessory structures within ½ mile of the normal high water mark of the body of water, that support cold water game fisheries and may offer outstanding foot trail, remote camping, and scenic vista opportunities.

"Backpack Hiking Trails": designated foot trails of moderate to long length designed primarily for overnight foot traffic, with primitive campsites provided for overnight camping.

"Campgrounds": areas designed for transient occupancy by camping in tents, camp trailers, travel trailers, motor homes, or similar facilities or vehicles designed for temporary shelter. Developed campgrounds usually provide toilet buildings, drinking water, picnic tables, and fireplaces, and may provide disposal areas for RVs, showers, boat access to water, walking trails, and swimming opportunities.

"Carry-In Boat Access": dirt or gravel launch sites accessible by foot over a short to moderate length trail, that generally accommodates the use of only small watercraft. Includes a trailhead with parking and a designated trail to the access site.

"Clear-cut": a single-age harvesting method in which all trees or all merchantable trees are removed from a site in a single operation.

"Commercial Forest Land": the portion of the landbase that is both available and capable of producing at least 20 cubic feet of wood or fiber per acre per year.

"Commercial Harvest": any harvest from which forest products are sold. By contrast, in a pre-commercial harvest, no products are sold, and it is designed principally to improve stand quality and conditions.

“Community”: an assemblage of interacting plants and animals and their common environment, recurring across the landscape, in which the effects of recent human intervention are minimal (“Natural Landscapes Of Maine: A Classification Of Ecosystems and Natural Communities” Maine Natural Heritage Program, April 1991).

“Compartment”: the basic inventory unit, a parcel of forest land, easily identifiable on the ground and generally ranging between 500 and 1,500 acres in size.

“Cross-Country Ski Trails”: designated winter-use trails primarily available for the activity of cross-country skiing. Trails may be short to long for day or overnight use.

“Cutting Cycle”: in uneven-aged management, the interval between harvest operations.

“Day Walking Trails”: designated foot trails of short to moderate length designed primarily for day use foot traffic.

“Demonstration Forest”: a forest in which management activities are designed to illustrate various facets of forest management; and/or to demonstrate exemplary multiple use techniques including but not limited to natural, scenic, wildlife, and educational values; and where information transfer through signs, brochures, and tours is provided.

“Ecological Reserve”: a parcel of land designated by the Bureau of Parks and Lands Director, containing certain “ecosystem types” (see definition below), and set aside primarily for non-manipulative scientific research and education purposes.

“Ecosystem Type”: a group of communities and their environment, occurring together over a particular portion of the landscape, and held together by some common physical or biotic feature.
(“Natural Landscapes Of Maine: A Classification of Ecosystems and Natural Communities.” Maine Natural Heritage Program, April 1991).

“Essential Habitat”: areas currently or historically providing physical or biological features essential to the conservation of an endangered or threatened species in Maine, and which may require special management considerations. Examples of areas that could qualify for designation are nest sites or important feeding areas. For some species, protection of these kinds of habitats is vital to preventing further decline or achieving recovery goals.

“Exotic (nonnative)”: a species that enters or is deliberately introduced into an ecosystem beyond its historic range, except through natural expansion, including organisms transferred from other countries into the state, unnaturally occurring hybrids, cultivars, genetically altered or engineered species or strains, or species or subspecies with nonnative genetic lineage.

“Forest Condition”: the state of the forest, including the age, size, height, species, and spatial arrangement of plants, and the functioning as an ecosystem of the combined plant and animal life of the forest.

“Forest Type”: a descriptive title for an area of forest growth based on similarities of species and size characteristics.

“Group Camping Areas”: vehicle or foot-accessible areas designated for overnight camping by large groups. These may include one or more privies, several fire rings or grills, a minimum of one water source, and several picnic tables.

“Group Picnic Area/Shelters”: areas designed to accommodate large groups that are generally separated from other nearby recreation facilities. These areas will usually include a large indoor charcoal grill and a large field area for game play. Outhouses may be shared with other users of the parcel.

“Horseback Ride/Pack Stock Trails”: generally moderate to long-distance trails designated for use by horses, other ride, or pack stock.

“Improved Boat Access”: vehicle-accessible hard-surfaced launch site**s** with gravel or hard-surface parking areas. May also contain one or more picnic tables, an outhouse, and floats or docks.

“Interpretation”: an educational activity which aims to reveal meanings and relationships through the use of original objects, by first hand experience, and by illustrative media, rather than simply to communicate factual information.

“Interpretive Trails”: designated trails of short to moderate length designed to provide information regarding natural, historic, or cultural features, or wildlife. Information can be provided using a variety of methods ranging from self-guided trails with numbered posts corresponding to a booklet to those in which staff provide regularly scheduled guided programs.

“Invasive Species”: generally nonnative species that invade native ecosystems and successfully compete with and displace native species due to the absence of natural controls. Examples are purple loosestrife and the zebra mussel.

“Krummholz”: a term used to describe various tree species that populate high elevation areas. The term literally means “crooked wood.”

“Log Landings”: areas, generally close to haul roads, where forest products may be hauled to and stored prior to being trucked to markets.

“Management Roads”: roads designed for timber management and/or administrative use that may be used by the public as long as they remain in service. Management roads may be closed in areas containing special resources, where there are issues of public safety or environmental protection.

“Mature Tree”: a tree which has reached the age at which its height growth has significantly slowed or ceased, though its diameter growth may still be substantial. When its annual growth no longer exceeds its internal decay and/or crown loss (net growth is negative), the tree is over-mature.

“Non-mechanized”: a mode of travel across the landbase which does not utilize internal combustion, electric, or mechanically powered conveyances; which in itself constitutes a recreational activity, or facilitates participation in a recreational activity.

“Motorized”: a mode of travel across the landbase which utilizes internal combustion or electric powered conveyances; which in itself constitutes a recreational activity, or facilitates participation in a recreational activity. This includes or assumes the use of mechanized forms of travel, such as a bicycle, for the same purpose.

“Mountain Bike Trails”: designated trails generally located on rough trail surfaces with moderate to steep grades, designed primarily for the use of mountain bicycles with all-terrain tires by individuals seeking a challenging experience.

“Multi-aged Management": management which is designed to retain two or more age classes and canopy layers at all times. Its harvest methods imitate natural disturbance regimes which cause partial stand replacement (shelterwood with reserves) or small gap disturbances (selection).

“Native”: any species present in an ecosystem within its historic range, or naturally expanded from its historic range.

“Natural Resource Values”: described in Maine’s Natural Resource Protection Act to include coastal sand dunes, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds and rivers, streams, and brooks. For the purposes of this plan they also include unique or unusual plant communities.

“Nontimber Management”: describes acres on which, due to administrative decision or site/terrain factors, either will not be cut or otherwise are unlikely to be cut. These acres will be excluded from sustainable harvest calculations.

“Old Growth Stand”: a stand in which the majority of the main crown canopy consists of long-lived or late successional species usually 150 to 200 years old or older, often with characteristics such as large snags, large downed woody material, and multiple age classes, and in which evidence of human-caused disturbance is absent or old and faint.

“Old Growth Tree”: for the purposes of this document, a tree which is in the latter stages of maturity or is over-mature.

“Pesticide”: a chemical agent or substance employed to kill or suppress pests (such as insects, weeds, fungi, rodents, nematodes, or other organism) or intended for use as a plant regulator, defoliant, or desiccant. (LURC Regulations, Ch. 10)

“Primary Forest”: forest areas having no discernible evidence of human-caused disturbance. Depending on where a particular primary forest is along its stand replacement sequence, it may or may not fit the definition of old growth.

“Primitive Campsites”: campsites that are rustic in nature, have one outhouse, and may include tent pads, Adirondack-type shelters, and rustic picnic tables; campsites are generally accessed by vehicle, foot, or water.

“Primitive Picnic Areas”: trail or water access only areas that may contain one or more rustic picnic table, fire ring or outhouse.

“Public Road or Roadway”: any roadway that is owned, leased, or otherwise operated by a government body or public entity. (LURC Regulations, Ch. 10)

“Public Use Roads”: all-weather gravel or paved roads designed for two-way travel to facilitate both public and administrative access to recreation facilities; and includes parking facilities provided for the public. Management will include roadside aesthetic values normally associated with travel-influenced zones.

“Recreation Biking Trails”: designated trails of short to moderate length located on hard-packed or paved trail surfaces with slight to moderate grades, designed primarily for the use of groups or individuals seeking a more leisurely experience.

“Recreation Values”: the values associated with participation in outdoor recreation activities.

“Regeneration”: both the process of establishing new growth and the new growth itself, occurring naturally through seeding or sprouting, and artificially by planting seeds or seedlings.

“Regulated Forest Acreage”: that portion of the commercial forest landbase on which the sustainable harvest will be calculated at or near maximum sustainable levels.

“Release Cutting”: any cutting operation designed to remove competing vegetation from or establish proper spacing intervals among featured trees.

“Riparian”: an area of land or water that includes stream channels, lakes, floodplains and wetlands, and their adjacent upland ecosystems.

“Rotation”: the age at which stands of timber are harvested for particular economic or silvicultural objectives.

“Salvage”: a harvest operation designed to remove dead and dying timber in order to remove whatever value the stand may have before it becomes unmerchantable.

“Selection”: related to multi-aged management, the cutting of individual or small groups of trees; generally limited in area to patches of one acre or less.

"**Semi-Regulated Forest Acreage":** describes acres on which, due to site, terrain or nontimber values, will yield commercial forest products at rates significantly lower than the maximum sustainable were timber the dominant use. These acres, which will have periodic but non-regular harvests, are to be distinguished from those on which commercial timber harvesting will be excluded.

"Service Roads": summer or winter roads located to provide access to Bureau-owned lodging, maintenance structures, and utilities. Some service roads will be gated or plugged to prevent public access for safety, security, and other management objectives.

"Significant Habitat": those habitats regulated by the Natural Resources Protection Act (NRPA) administered by the Maine Department of Environmental Protection. Essential habitats include freshwater wetlands, vernal pools, waterfowl and wading bird habitats, deer wintering areas.

"Silviculture": the branch of forestry, which deals with the application of forest management principles to achieve specific objectives with respect to the production of forest products and services.

"Single-aged Management": management which is designed to manage single age, single canopy layer stands. Its harvest methods imitate natural disturbance regimes, which result in full stand replacement. A simple two-step (seed cut/removal cut) shelterwood is an example of a single-aged system.

"Site Quality": the combination of environmental factors and species' requirements, which serve to measure the degree of success with which a particular species of tree will occupy a given area of the forest.

"Snowmobile Trails": designated winter-use trails of varying length located on a groomed trail surfaces with flat to moderate grades, designed primarily for the use of snowmobiles.

"Specialized Habitat": habitat areas and features including rare natural communities, riparian areas, wetlands, mast-producing trees (beech and oak), grasslands, snags and den trees, large woody debris on the ground, raptor nesting trees, apple trees, and alpine slopes.

"Stand": a group of trees, the characteristics of which are sufficiently alike to allow uniform classification.

"Sustainable Harvest": that level of timber harvesting, expressed as treated acres and/or volume removals, which can be conducted on a perpetual basis while providing for nonforest values as expressed in this document. Ideally this harvest level would be "even-flow," that is, the same quantity each year. In practice, the current condition of the different properties under Bureau timber management, and the ever-changing situation in markets, will dictate a somewhat cyclical harvest, which will approach even-flow only over time periods of a decade or more.

“Sustainable Harvest Unit”: a grouping of Bureau parcels with total area in the range of 10,000 to 50,000 acres, typically one or more consolidated units plus nearby smaller tracts, for which forest conditions are similar enough to make unified sustainable harvest calculations feasible.

“Unimproved Boat Access”: vehicle-accessible launch sites with dirt or gravel ramps to the water and parking areas, and where no other facilities are normally provided.

“Unregulated Forest Acreage”: describes acres on which, due to administrative decision or site/terrain factors will not be harvested, or are very unlikely to be harvested. These acres will be excluded from sustainable harvest calculations.

“Wide-area (Landscape)”: in the context used in this document, this is the large-scale view of the land, beyond forest stand or compartment level, taking in entire consolidated units or more, and including similarities and contrasts with conditions on abutting lands.

D. References

Maine Department of Conservation, Bureau of Parks and Lands Statutes; 12 MRSA Sections 1801-1899-C; May 1999 as amended.

Maine Department of Conservation, Bureau of Public Lands, Bigelow Preserve Management Plan, August 1989.

Maine Department of Conservation, Bureau of Parks and Lands, *Integrated Resource Policy for Public Reserved, Non-reserved Lands, State Parks, and State Historic Sites;* December, 2000.

Maine Department of Conservation, Bureau of Parks and Lands, *Wildlife Guidelines for the Public Reserved Lands of Maine*; 1988 as amended.

Maine Department of Conservation, Maine Natural Areas Program, *Ecological Reserve Monitoring Project*; April 2001.

Maine Department of Conservation, Maine Natural Areas Program, *Natural Resource Inventory of the Flagstaff Region*

Maine Department of Conservation and the Maine Department of Inland Fisheries and Wildlife, *Strategic Plan for Providing Public Access to Maine Waters for Boating and Fishing*, March 1995.

State of Maine, Office of the Governor, *Maine Woods Legacy*, November 2003.

E. Public Advisory Committee Members

F. Summary of Public Comments

G. Technical Appendices

Natural and Geological Resources

Summary Wetland and High Elevation Acreage

THE BUREAU Property	Total Acreage	Forested Wetland Acreage	Open Wetland Acreage	Acres > 2,700 feet elevation
Mt. Abraham	6,214	0	0	3,124
Redington	1,000	0	0	49
Chain of Ponds	1,119	20	112	0
Coplin West	400	140	29	0
Coplin Central	500	0	0	0
Highland Double	300	0	0	0
Highland Southeast	125	0	0	0
Highland West	325	7	7	0
Freeman	112	0	4	0
King and Bartlett	60	0	0	0
Bigelow Preserve	35,842	1,161	1,056	3,113
Dead River Peninsula	4,191	295	166	0
Flagstaff (Myers Lodge)	290	120	43	0
Flagstaff Island	221	0	14	0
Flagstaff Lake	1,316	23	156	0
Spring Lake	960	34	43	0
Wyman	1,112	15	28	0
Carrabassett Valley	397			
Total	54,484	1,850	1,658	6,286

H. Technical Appendices – Historic and Cultural Resources

Summary of Wildlife Resources within the Flagstaff Region Plan Area

Habitat Type	*Flagstaff Lake*	*Mt. Abraham*	*Chain of Ponds*	*Coplin Plt.*
Essential	2 mapped bald eagle nests			
Significant	Dead River Wetlands			
Specialized	Extensive Riparian areas on Flagstaff Lake			
	Alpine habitat – Bigelow Range	Alpine Habitat		Deer Winteting Harea

J. Technical Appendices – Recreation and Visual Resources

Table of Estimated Acres – These may still need some revision

Tract	Total Acres	Forest Acres	Regulated Acres				Unreg. For. Ac.	
			Total	HW	MW	SW		
Bigelow	36,063	35,000	23,500	10,820	9,530	3,150	11,500	
Wyman, So. of Rt 27	1,112	1,069	979	186	767	26	90	
Dead River/Spring Lk	5,150	4,758	4,494	543	2,747	1,204	264	
Mt. Abraham	6,214	5,300	1,000	500	200	300	4,300	
Chain of Ponds	1,119	996	241	100	120	21	755	
Highland Plt, 4 lots	750	737	683	440	101	142	156	
Coplin Plt, 2 lots	900	863	815	339	235	241	48	
Redington	1,000	1,018	836	246	527	63	182	
Flagstaff (Myers Lodge)	290	258	253	0	49	204	5	
Flagstaff shores	1,316	1,300	0	0	0	0	1,300	
Freeman	112	98	98	45	45	8	0	
King and Bartlett	60	60	60	0	60	0	0	
Totals	54,816	52,559	32,959	13,219	14,381	5,359	19,600	
Forest	% of land	95.9%						
		% of For.	62.7%				37.3%	
		H/M/S %	of regul.	40.1%	43.6%	16.3%		

Partial listing of source documents available:

Compartment Examination Manual
Prescription Manual and prescriptions for Flagstaff Region lands
Timber Sale Manual
Forest inventory data
Forest Certification Reports - Sustainable Forestry Initiative (March 2002), Forest Stewardship Council (March 2002), Maine Bureau of Parks and Lands Forest Certification Manual
Soil surveys
Forest Laws of Maine
Best Management Practices Manual